
CONFIDENTIAL – PRELIMINARY REPORT
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A VARIABLE SPENDING POLICY

for the

STATE OF IDAHO ENDOWMENT FUND INVESTMENT BOARD

Project Overview
and
Preliminary Design Results

Prepared by The QInsight Group

October 15, 1999

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1. Idaho Variable Spending Policy Project Overview

1.1 The Idaho VSP Project Team

The Idaho Variable Spending Policy (VSP) project team consists of three professionally licensed and experienced organizations with complementary expertise in the fields of financial modeling, accounting, and endowments. The team is led by the QInsight Group, which will act in a duel capacity to provide project management and endowment system modeling and simulation. The second member of the team, Deloitte & Touche, a national firm with a local presence in Boise has been involved with the Idaho Endowment since 1996 and will be providing key accounting and auditing services. The third and final member of the team is Miller Anderson & Sherrerd, who will bring extensive expertise in the specialized field of Endowment/Foundation practices and procedures.

The QInsight Group specializes in financial consulting, providing a mixture of customized business services and financial software products to over 50 domestic and international clients worldwide. The QInsight consulting and business development services range from strategic planning to asset allocation, asset management, risk analysis, and quantitative modeling and simulation of financial systems. With offices in San Diego, California and Philadelphia, Pennsylvania, the principals in QInsight bring a combination of academic credentials and real world business acumen. Dr. David Nawrocki is a tenured finance professor at Villanova with over 50 paper presentations and journal articles to his credit. Mr. William Carter is a certified public accountant and registered investment advisor, with over 25 years of international experience, and Mr. Daniel Bender is a specialist in business development and project management, with over 25 years of experience in South America, Europe, Asia, and the US.

Deloitte & Touche LLP is one of the largest accounting and professional organizations in the world, with over 82,000 people in 135 countries. Locally, Deloitte & Touche has 57 client service professionals, including five partners and 16 managers. A few of the D&T Idaho based clients include the Endowment Fund Investment Board, Public Employees Retirement System of Idaho, and the Idaho State Board of Education. Mr. Louis E. (Lou) Henry is the Boise Office's most experienced senior audit manager with over 31 years of client service experience with the firm. He serves as manager or quality control reviewer for all public sector clients in Boise area offices and for public sector clients in the northwest. He is a valued consultant to various clients that hold and invest large sums, including the endowment Board, PERSI, University and college foundations, hospitals, and private retirement plans. Mr. Henry is also the chairman of the Idaho State Board of Accountancy Quality Review Oversight Committee.

The firm of Miller Anderson & Sherrerd, LLP (MAS) represents some 270 Endowment and Foundation clients with total investment assets of over $12.1 billion. Mr. Stephen T. Golding, a principal with the firm, specializes in working with these charitable institutions on their investment policy and guideline development. Prior to his involvement with MAS, Mr. Golding was the Vice President for Finance, Budget Director and CFO of the University of Pennsylvania, and before that the Secretary of Finance and Budget Director for the State of Delaware. Mr. Golding has written extensively on the subject of variable spending policies.

1.2 Variable Spending Policy Project Description

The objective of the Idaho Variable Spending Policy Project is to design and implement by July 2000 a customized, state-of-the-art spending policy crafted specifically for the Idaho Endowment Fund Investment Board (EFIB). The Team of QInsight, Deloitte & Touche, and Miller Anderson & Sherrerd has developed the following three-phase plan to meet that objective. A brief description of each project phase is presented below, along with a list of the relevant deliverables.

Phase 0 - Prepared a multi-phase, nine-month "Project Plan" to design and implement a Variable Spending Policy (VSP) for the Idaho Endowment Fund Investment Board. The Phase 0 deliverable date is October 15, 1999.

- Statement of Work, deliverables, schedule & budget
- VSP Objectives for state endowment funds
- Impact of a new VSP on the EFIB
- VSP "Best Practices" survey for endowments
- Endowment fund flow model and issues analysis
- Endowment sources and uses survey
- Endowment legal document review
- Prototype VSP quantitative model and preliminary findings

Phase 1 - Complete the VSP design and develop a detailed implementation plan. Phase 1 deliverable date is December 8, 1999.

- Develop Variable Spending Policy including:
  - Cash management policy
  - Investment policy (macro level)
  - Accounting policy
  - Sources & uses policy
  - Annual management & review policy
- Refine sources and uses Survey
- Refine VSP quantitative model and design for annual use and revision by EFIB
- Define earnings reserve distribution threshold
- Prepare phase-in policies
- Optional deliverable: Prepare Investment policy (micro-level) asset class benchmarks and performance guidelines (in cooperation with selected Asset Management firm)
- Optional deliverable: Prepare list of detailed asset classes (micro-level) by capitalization and style as input for investment manager search (in cooperation with selected Asset Management firm)

Phase 2 - Complete the VSP system installation and training program. Phase 2 deliverable date is July 2000.

- Implement operational VSP system
- Develop VSP Procedures Manual
- Develop accounting procedures, chart of accounts, accounting manual
- Introduce and distribute VSP documents to relevant staff and managers
- Implement VSP benchmarking and review system and schedule
- Optional deliverable: Provide in-service to train staff in VSP procedures and guidelines
- Optional deliverable: Meet and coordinate w/beneficiaries to explain VSP and discuss annual planning and budgeting requirements

1.3 Project Management & Organization

The QInsight Group management goal is simply to deliver to our customer, the State of Idaho, a high quality VSP Endowment product, on time and within budget. In meeting this goal, our philosophy is to emphasize cooperative planning and coordination of project activities, along with frequent progress reviews in tandem with our customer(s). This allows us to respond to any problems or issues in a timely and proactive manner, thereby limiting detrimental impact on the project. To meet the project goals outlined above, the QInsight Group project endorses the following four-step management methodology that is described below and depicted in figure on the following page:

- Vision – Determine the goals and objectives of the Idaho VSP Project in coordination with the major contributors, beneficiaries, and managers of the endowment funds. Beginning initially with the high level plans and objectives, and on a continuing basis, as appropriate, obtain a consensus or agreement amongst all of the interested parties before proceeding to the actual project implementation tasks and activities. Toward that end, QInsight has set forth a set of three key spending policy objectives for the State of Idaho Endowment Funds (see section 2.1 below), as well objectives for each of the three phases of the VSP Project. These must be reviewed and approved before proceeding.

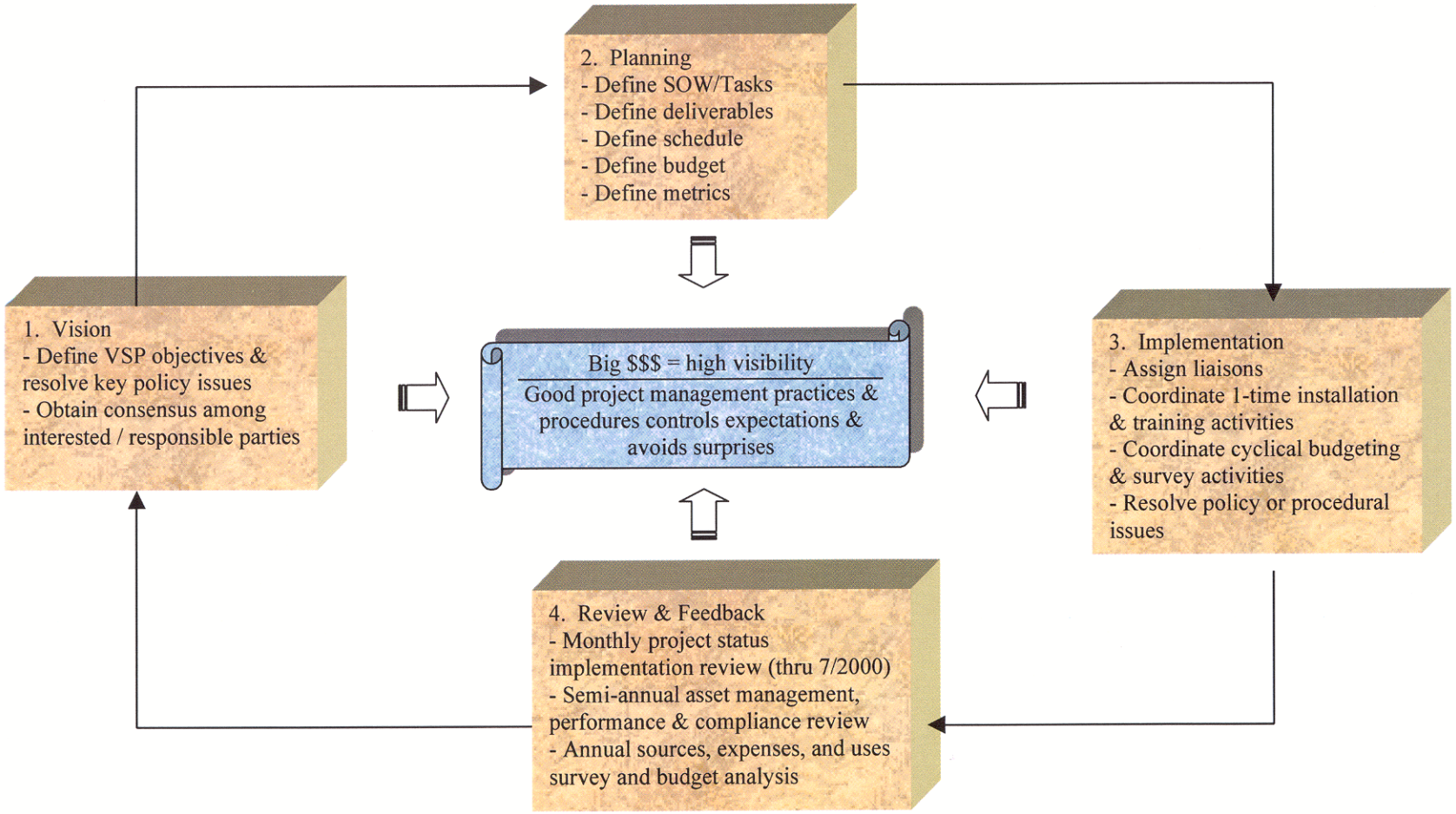
- Planning – Define a detailed scope of work, a list of project deliverables, a budget and a schedule. Each of these has been set forth, briefly, in Section 1.2 above, and in greater detail in Appendix A. This document and its contents constitute the actual deliverables defined for Phase 0 of the Idaho VSP Project. These must be reviewed and approved before proceeding.

- Implementation – Assign, as part of a state VSP project implementation team, a liaison from each organization impacted by the new spending policy. The QInsight Group will then take the responsibility for coordinating liaison activities for each task or deliverable specified in the project plan.

- Review and Feedback – Implement regularly scheduled review meetings. By establishing clearly defined deliverables and schedules, it will be straight-forward to review and assess the VSP project progress, and determine what steps, if any, are needed to put the project back on track in the event that problems arise.

As the size of the Idaho endowment continues to grow, it will continue to become more highly visible and therefore, more closely scrutinized. This may be viewed as an opportunity for the Idaho Investment Fund Endowment Board and Idaho State Board of Land Commissioners to work more closely with the beneficiaries, involving them in the annual VSP management cycle, including the budgeting, review, and re-balancing processes.

Figure 1.3-1: VSP PROJECT MANAGEMENT & ORGANIZATION AN ANNUAL BUDGETING & REVIEW PROCESS



The VSP project is an opportunity to enhance the cooperation and coordination between the EFIB, Dept. of Lands, Land Board, & Beneficiaries

1.4 Preliminary Idaho Endowment VSP Quantitative Model

The preliminary Idaho Endowment VSP quantitative model simulates, over time, the performance of the state endowment funds as they respond to various source, investment, and usage assumptions. In particular, the permanent, earnings reserve, and distribution funds are modeled in order to understand the impact of variable spending levels on both the current and future beneficiaries. The actual design characteristics and assumptions of the preliminary model are discussed in the following subsections. See Section 1.5 above for preliminary results and findings of the Idaho VSP quantitative model.

Objectives for State of Idaho Endowment Funds

There are three VSP objectives for the endowment funds.

- **Maintenance of endowment purchasing power** - The principal funds are required to grow at an annual rate equal to the sum of the expected annual price increases (as determined initially by a general inflation index and later by a weighted index for specific funds) and the expected annual population growth rate (initially the general Idaho population growth and later a weighted growth rate for specific funds).

- **Maintaining fair and equitable inter-generation funding** - The spending rate for current beneficiaries is set at a level and growth rate that can be maintained for an extended period of time without jeopardizing the long-term growth required in the principal funds. The spending rate is based on a moving average of the market value of the principal and earnings reserve funds.

- **Achieving smooth and predictable spending** - earnings reserve fund is established at a level designed to maintain as smooth a spending rate as is possible in volatile capital markets. The target level of the earnings reserve fund is also set to provide for the growth of the permanent endowment funds at an annual rate that is a sum of the specified price and population indexes.

Endowment or Corpus

The endowment or permanent fund contains the restricted funds. These funds are not allowed to be used for current spending and can only be invested in order to generate future income. In this model, the endowment is required to grow at the inflation rate plus the population growth rate. The appropriate growth rate for the endowment will be a moving average of previous rates. Typically, a three to five year moving average is used.

- Growth of Endowment = f(3-5 year moving average of inflation and population rates)

Earnings Reserve Fund

The earnings reserve fund consists of unrestricted funds and is used to stabilize the long run growth of the endowment fund and the year to year spending. The earnings reserve captures all of the fund's income and pays out the funds expenses. The management period in this simulation is 6 months. Every six months all dividends, interest payments, and all realized capital gains are distributed to the earnings reserve fund. This includes the investment income from both the endowment and the earnings reserve funds. In addition, any additional revenue sources will be added into this fund. As funds are withdrawn from the reserve fund for distribution, they will be placed in a cash management program. All income from the cash management program is also placed into the earnings reserve. The current spending as well as all management and administrative fees will be deducted from the earnings reserve fund.

- Reserve Fund = Beginning Balance + dividends + interest + realized gains + additional revenue + cash management interest – spending – administrative fees – management fees

Spending Policy

The spending policy is the amount of funds available for current distribution to beneficiaries. The spending policy is implemented as a percentage of the market value of the fund's assets. There are two spending policies implemented in the simulation.

- Spending = f(Endowment)
- Spending = f(Endowment + Reserve)

The values for the endowment and the reserve will be computed from a moving average of past values. Typically, a three to five year moving average of the endowment and reserve funds will be used. The second policy becomes important whenever the reserve starts to accumulate to fund levels comparable to the permanent endowment funds.

Timing of Cash Flows and Cash Management

The fund is re-balanced every 6 months. All cash inflows and outflows are assumed to occur at the end of the 6-month period. The spending is assumed to be distributed evenly throughout the 6-month period. For the purpose of the cash management policies, the money market rate is used to compute the interest on the average balance in the distribution fund. The average balance is assumed to be one-half of the funds available for distribution.

Deferred Spending for the endowment fund and the spending/distribution fund

If the earnings reserve fund drops to zero because of adverse market conditions, then the transfer of funds from the earnings reserve will be deferred. First, any increase in the endowment will be deferred. Second, spending will be deferred. When the earnings reserve fund starts to accumulate funds again, up to 50% of the reserve fund may be used to make up the deferred accumulation and spending.

Additional Income

The endowment may have continuing outside income from grants, gifts, etc. This income goes into the earnings reserve fund and is available to the endowment or for distribution to beneficiaries.

Administrative Fees

These include fees charged by outside investment managers as well as the administrative budget for the endowment fund. They are deducted from the earnings reserve fund.

Asset Classes

There are three asset classes. The S&P 500 index is used for equity returns. The Lehman Brothers Intermediate Bond Index is used for bond returns. The long-term investment funds are allocated to equity and bonds. The cash management program uses the three-month Treasury bill as the appropriate investment return.

Active Management Policy

Historically, there is a negative correlation between equity returns and inflation. This relationship has been studied in the USA back to the 1800s. As a result, equity returns do very poorly during high inflation periods and very well during low inflation periods. The active management policy in this simulation is designed to reflect this fact. Whenever the inflation rate is above a 5% annual rate, the allocation in equities is reduced to 40% with the funds reinvested at the intermediate bond rate. Table 1.4-1 below illustrates this point. Note that S&P returns are significantly higher during periods of low inflation and are significantly lower during periods of increasing inflation.

Table 1.4-1: Inflation (CPI) vs. S&P 500 (Monthly Data – 1960 to 1998)

Decade	Correlation S&P and CPI	CPI Rate (%)	S&P Return (%)	Intermediate Bond Return (%)
1960-69	-0.091	2.52	7.81	3.48
1970-79	-0.199	7.36	5.86	7.24
1980-89	-0.144	5.10	17.55	11.87
1991-98	-0.322	2.96	17.91	8.04
1960-1998	-0.166	4.50	12.00	7.71

1.5 Preliminary VSP Review and Recommendations

The preliminary VSP review and recommendations are presented below. They are based on the VSP objectives described above, a preliminary sources and uses data survey, and the simplified quantitative funds flow model described above. Although both the model complexity as well as the actual sources and uses data will change as the model is refined and more detailed projections become available from the Department of Lands and the beneficiaries, we believe the following recommendations will be relatively insensitive to those changes.

1. **Earnings Reserve Level as Percent of Permanent Fund** - In order to meet the first and third objectives listed above, an earnings reserve is created. **The earnings reserve is defined as having the capability to sustain the distributions and to maintain the long-term purchasing power of the permanent endowment fund. In the case of a 70% equity/30% debt allocation and a 5.50% annual spending rate, the earnings reserve required is approximately 48 to 52% of the permanent endowment fund (levels reached in December, 1965 and December, 1968 of the simulation).** These levels are sufficient to maintain the required growth rate of the permanent endowment fund and the distributions.

2. **Variable Spending Rate - The spending rate formula is based solely on the permanent endowment for the first five years until the earnings reserve fund has grown to the required level. After the required earnings reserve level is attained, the spending rate is then computed based on both the permanent endowment and the earnings reserve.** The spending rate itself is also variable. After the required earnings reserve is achieved, the spending rate is increased by 0.5% semi-annually if the reserve is between one and two times the required level, and increased by 1.0% semi-annually if the reserve is more than 2 times the required level. Of course, the actual formal spending policy will not require the Endowment Committee to follow these rules once the required reserve level is reached. The Endowment Committee may decide to use additional "one-time" distributions or transfer funds to the permanent endowment.

3. **Distributions are Stable But Need to be Phased In - The 5.50% spending rate was selected for the 70% equity/30%debt asset allocation because the standard deviation of the distributions indicates that the distributions are able to grow at a stable pace.** A higher initial spending rate could have been selected, but the variable rate formula discussed above will increase the spending rate after the required earnings reserve level has been achieved. However, a more conservative approach would be to phase in the long-term spending rate.

4. **Higher Equity Allocation Raises Returns at No Significant Increase in Risk** - An asset allocation policy of 70% equity/30% fixed-income is the preliminary recommendation by The QInsight Group. **An analysis of the return/risk profiles of the 70/30, 60/40 and 50/50 equity/debt allocations shows no significant difference in risk (i.e. volatility).** Additionally, the earnings reserve is able to adequately protect both the permanent endowment fund and the distributions in all three cases. However, there is a substantial increase in the ending level of the earnings reserve and the cumulative distributions in the 70/30 allocation case. The QInsight Group will develop a transition plan to go from the current asset mix to the recommended asset allocation.

5. **Utilize an Inflation Trigger - This preliminary model also includes an "inflation trigger" that reduces the equity allocation to 40% (with a 6-month lag) when the annual inflation rate exceeds 5%.** This trigger significantly reduces the volatility of the returns in times of high inflation. The 5% annual rate was selected on the basis of a cumulative distribution analysis of the 1960 to 1998 period that shows the annual inflation rate rose above 5% less 33% of the time.

6. **Inter-Generation Equity** – There are three distinct possibilities for achieving inter-generation equity: the variable spending rate could rise to approximately 6.50% or higher (in the 70/30 case), transfers between the earnings reserve and the permanent endowment fund could be made or "one-time" distributions could be made from the earnings reserve to beneficiaries.

Endowment Spending and Investment Policy Historic Simulation Study

Beginning Endowment Value:	750.00
Beginning Stabilization Reserve Fund:	25.00
Additional Periodic Cash Income:	19.40
Growth Rate Periodic Cash Income:	.50
Population Growth Rate:	.25
Equity Management Fees:	.004000
Debt Management Fees:	.001500
Length of Moving Average in Years:	3
Variable Spending Policy	

Equity: 70.0 Debt 30.0

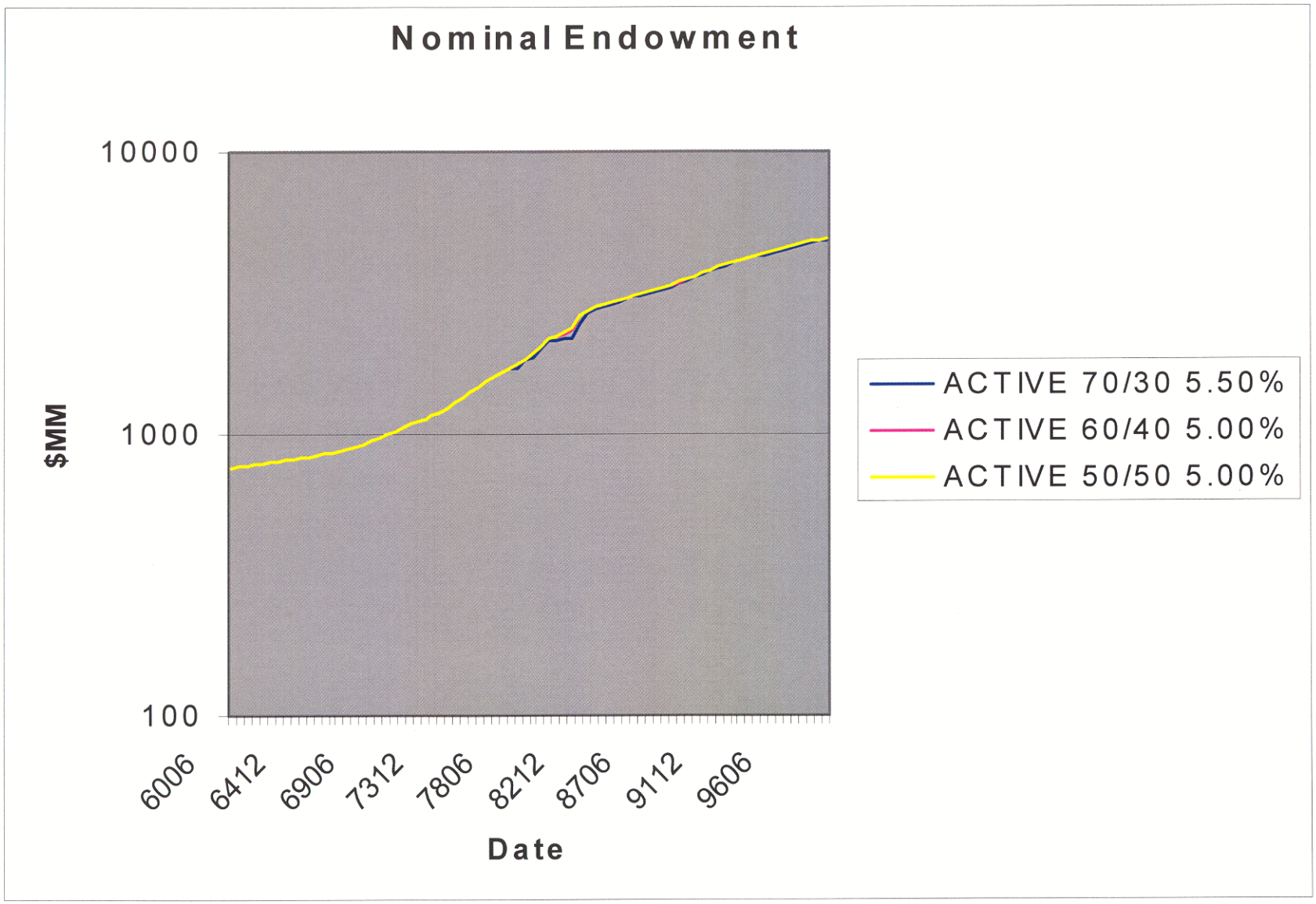
Spend	EndX	EndSD	EndRSV	ResX	ResSD	ResRSV	DisX	DisSD	DisRSV	Endow	Reserve	Distrib	CPIGrw	SpdEnd	End+Res	Cum.Dist
2.50	1.025	.000	9.990	1.089	.109	.819	1.049	.031	1.597	4950.2	16768.4	372.8	1.025	7.53	1.72	6949.62
3.00	1.025	.000	9.990	1.088	.123	.718	1.046	.074	.629	4950.2	14440.0	372.2	1.025	7.52	1.92	7119.90
3.50	1.025	.000	9.990	1.088	.137	.639	1.044	.122	.364	4950.2	12718.2	375.4	1.025	7.58	2.12	7333.76
4.00	1.025	.000	9.990	1.087	.160	.544	1.042	.105	.403	4950.2	11018.3	372.6	1.025	7.53	2.33	7487.57
4.50	1.025	.000	9.990	1.087	.164	.530	1.041	.103	.399	4945.0	9751.5	373.9	1.025	7.56	2.54	7702.29
5.00	1.025	.000	9.990	1.087	.173	.504	1.040	.088	.451	4943.4	8915.7	382.3	1.025	7.73	2.76	8086.92
5.50	1.025	.000	9.990	1.087	.190	.460	1.038	.076	.504	4924.4	7679.6	375.0	1.025	7.62	2.98	8194.06
6.00	1.025	.000	9.990	1.087	.233	.371	1.036	.063	.581	4894.4	6197.8	354.5	1.025	7.24	3.20	8005.08
6.50	1.024	.000	9.990	1.086	.299	.286	1.034	.093	.366	4792.5	4717.7	325.0	1.025	6.78	3.42	7698.06
7.00	1.024	.000	9.990	1.087	.311	.279	1.033	1.742	.019	4752.0	3957.5	317.4	1.025	6.68	3.64	7722.40

Equity: 60.0 Debt 40.0

Spend	EndX	EndSD	EndRSV	ResX	ResSD	ResRSV	DisX	DisSD	DisRSV	Endow	Reserve	Distrib	CPIGrw	SpdEnd	End+Res	Cum.Dist
2.50	1.025	.000	9.990	1.082	.103	.798	1.047	.051	.923	4950.2	13857.8	332.1	1.025	6.71	1.77	6542.13
3.00	1.025	.000	9.990	1.081	.118	.683	1.045	.093	.481	4950.2	11808.1	330.9	1.025	6.69	1.97	6724.48
3.50	1.025	.000	9.990	1.080	.129	.617	1.043	.119	.361	4950.2	10450.1	336.8	1.025	6.80	2.19	6967.27
4.00	1.025	.000	9.990	1.079	.159	.495	1.041	.098	.418	4950.2	8947.1	333.8	1.025	6.74	2.40	7095.35
4.50	1.025	.000	9.990	1.078	.163	.478	1.039	.090	.436	4943.8	7779.2	333.3	1.025	6.74	2.62	7278.10
5.00	1.025	.000	9.990	1.077	.181	.427	1.038	.070	.540	4934.9	6892.9	336.1	1.025	6.81	2.84	7522.46
5.50	1.025	.000	9.990	1.076	.198	.383	1.036	.065	.559	4912.5	5778.2	327.7	1.025	6.67	3.07	7630.22
6.00	1.025	.000	9.990	1.075	.223	.334	1.035	.061	.575	4898.0	4764.4	318.2	1.025	6.50	3.29	7663.79
6.50	1.024	.000	9.990	1.072	.303	.237	1.033	.109	.298	4785.2	3506.7	292.1	1.025	6.10	3.52	7306.50
7.00	1.024	.000	9.990	1.070	.320	.220	1.031	.149	.209	4625.2	2816.1	279.4	1.025	6.04	3.75	6992.28

Equity: 50.0 Debt 50.0

Spend	EndX	EndSD	EndRSV	ResX	ResSD	ResRSV	DisX	DisSD	DisRSV	Endow	Reserve	Distrib	CPIGrw	SpdEnd	End+Res	Cum.Dist
2.50	1.025	.000	9.990	1.076	.097	.787	1.046	.100	.458	4950.2	11363.7	296.5	1.025	5.99	1.82	6185.36
3.00	1.025	.000	9.990	1.074	.112	.668	1.043	.107	.405	4950.2	9684.9	297.6	1.025	6.01	2.03	6371.10
3.50	1.025	.000	9.990	1.073	.130	.561	1.041	.116	.355	4950.2	8279.7	298.0	1.025	6.02	2.25	6565.26
4.00	1.025	.000	9.990	1.072	.164	.436	1.039	.103	.382	4950.2	7090.4	297.9	1.025	6.02	2.47	6709.10
4.50	1.025	.000	9.990	1.070	.156	.452	1.038	.077	.495	4943.8	6125.6	298.8	1.025	6.04	2.70	6923.92
5.00	1.025	.000	9.990	1.069	.175	.396	1.037	.069	.533	4935.0	5350.1	301.2	1.025	6.10	2.93	7160.68
5.50	1.025	.000	9.990	1.068	.177	.386	1.035	.064	.551	4924.9	4681.0	303.6	1.025	6.17	3.16	7456.61
6.00	1.024	.000	9.990	1.065	.231	.281	1.033	.038	.871	4879.3	3415.1	281.7	1.025	5.77	3.40	7209.06
6.50	1.024	.000	9.990	1.063	.272	.232	1.032	.029	1.120	4858.3	2770.8	277.3	1.025	5.71	3.63	7274.64
7.00	1.024	.000	9.990	1.061	.344	.178	1.031	5.005	.006	4706.7	2251.2	269.6	1.025	5.73	3.87	6969.90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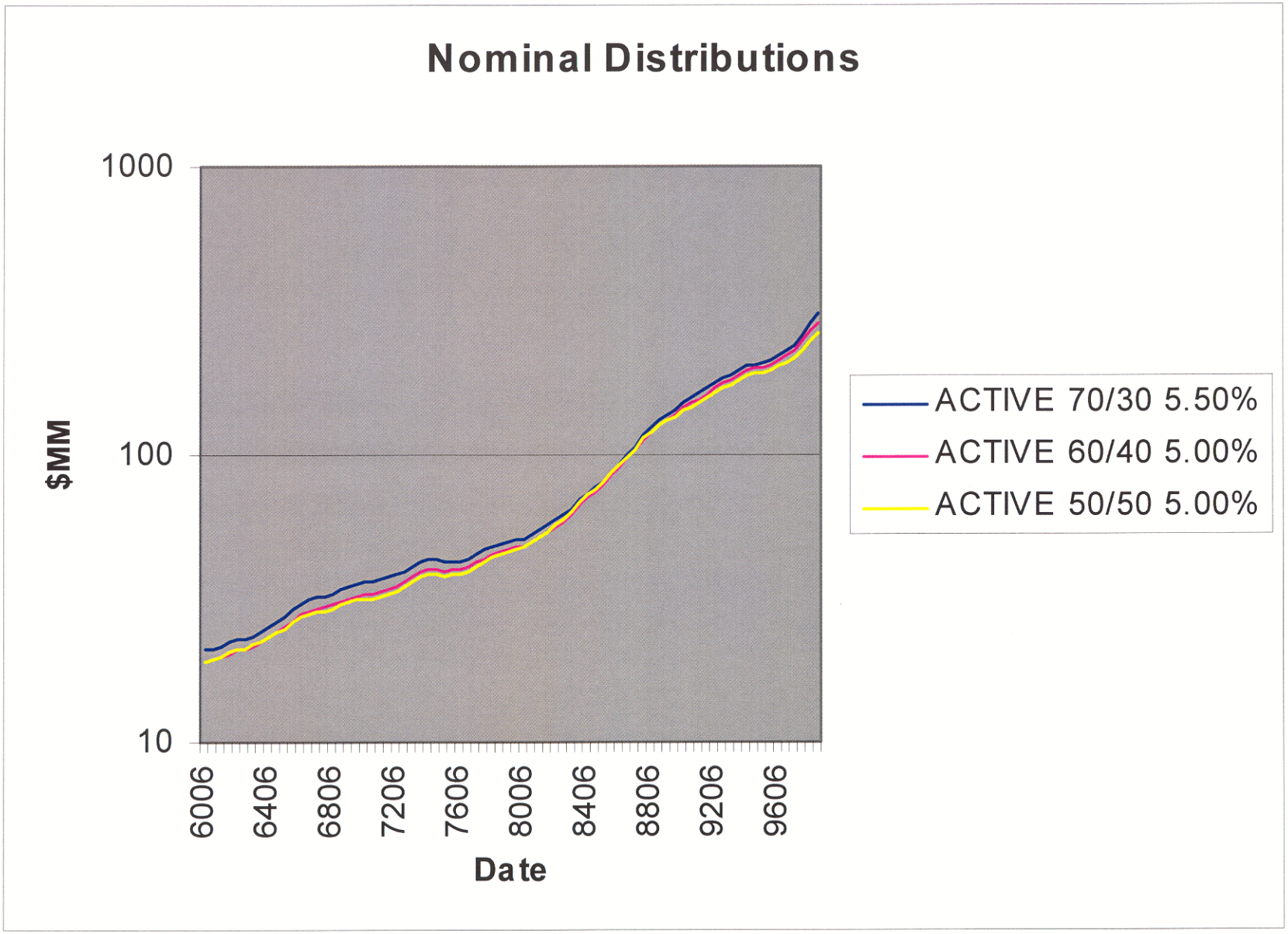
ACTIVE 60/40 5.00%
ACTIVE 50/50 5.00%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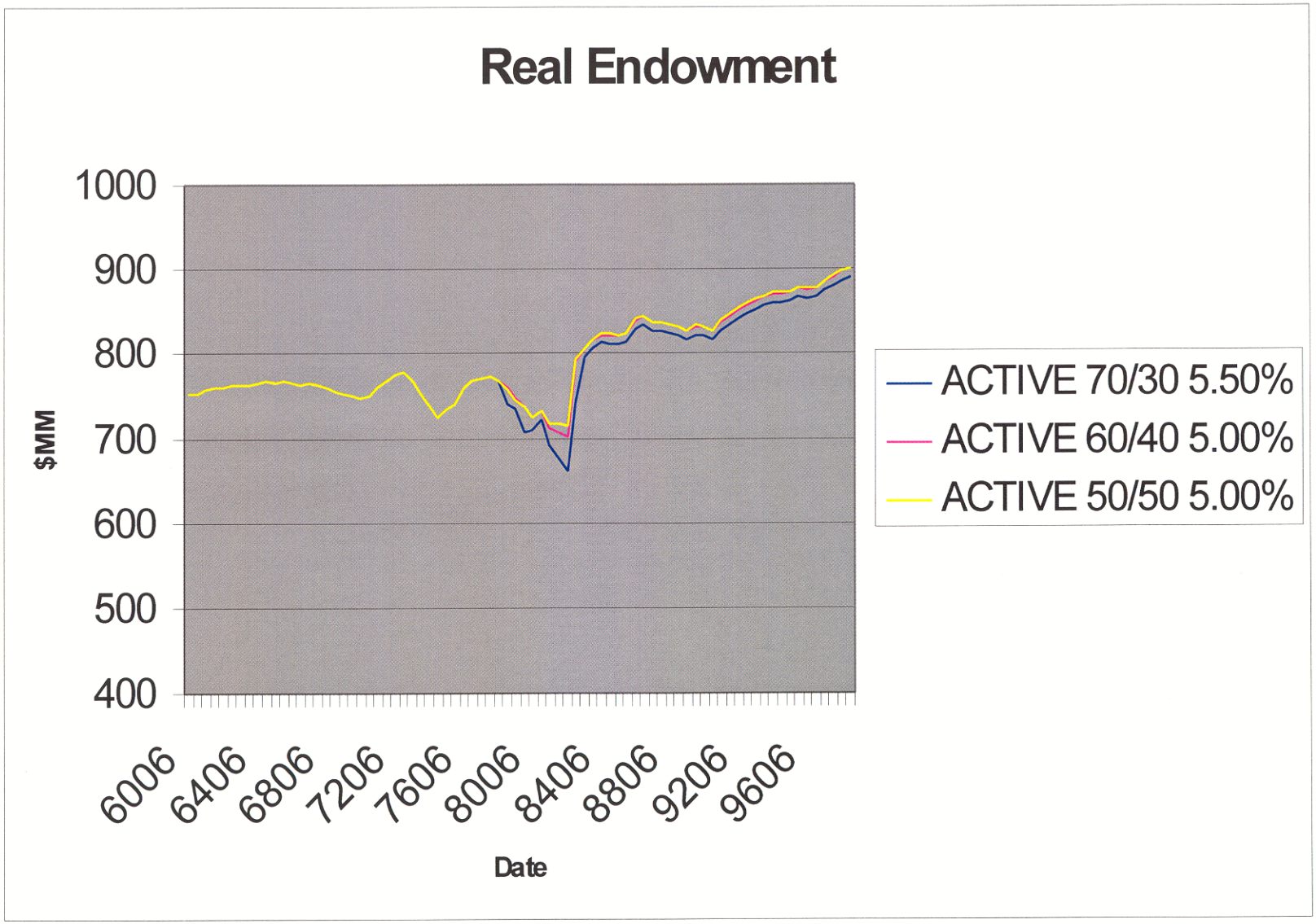
ACTIVE 50/50 5.00%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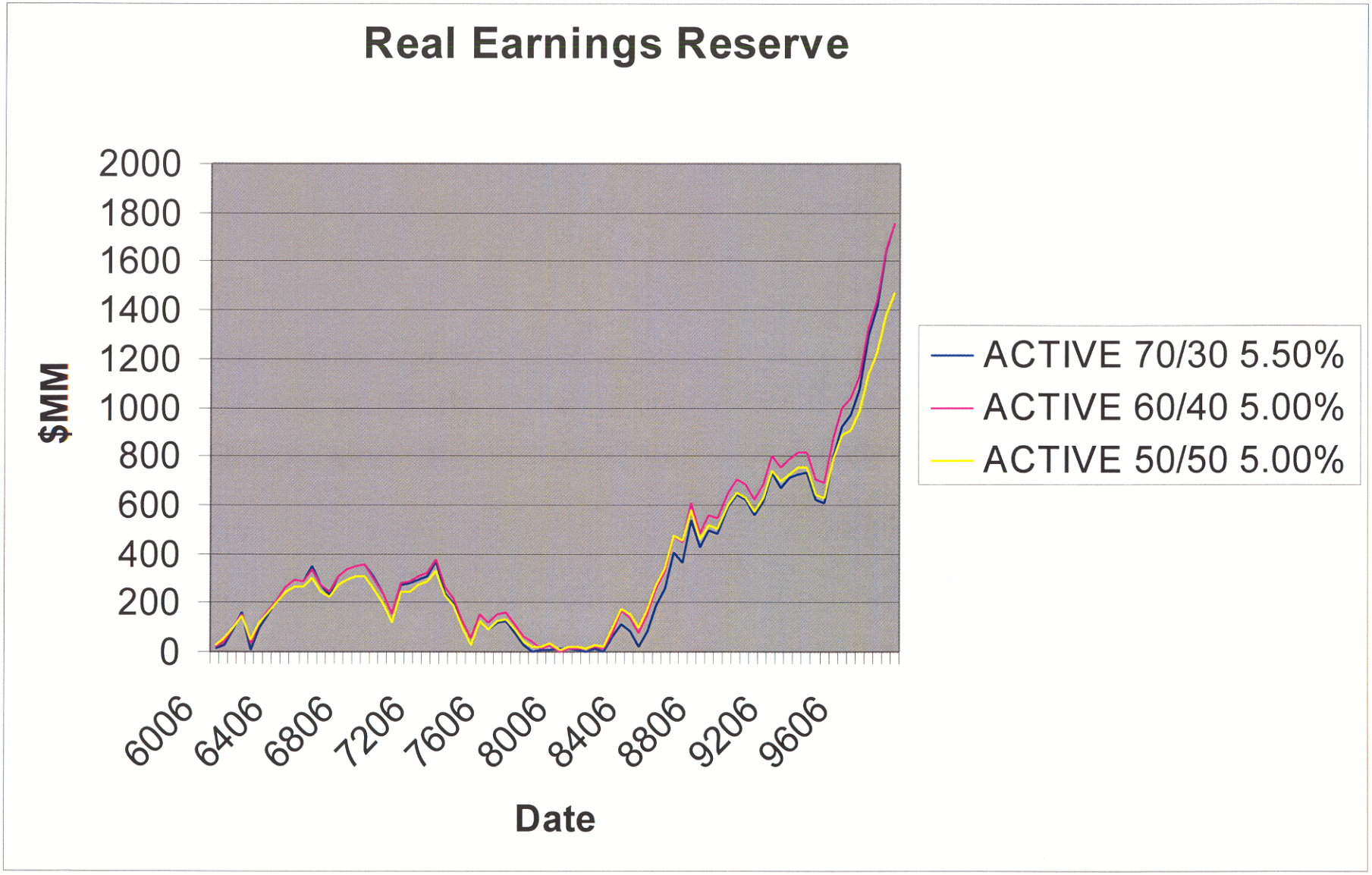
ACTIVE 60/40 5.00%
ACTIVE 50/50 5.00%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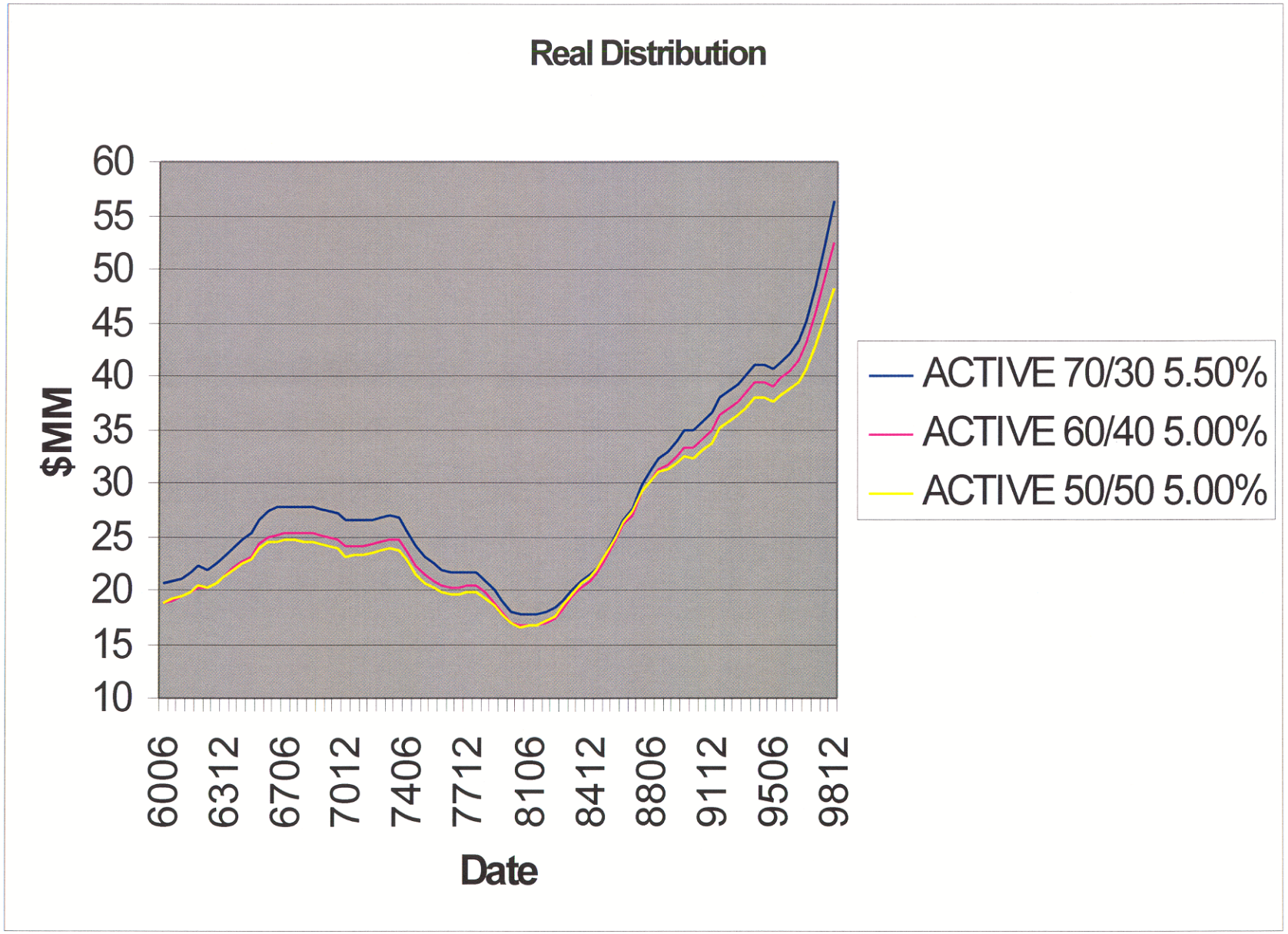
ACTIVE 50/50 5.00%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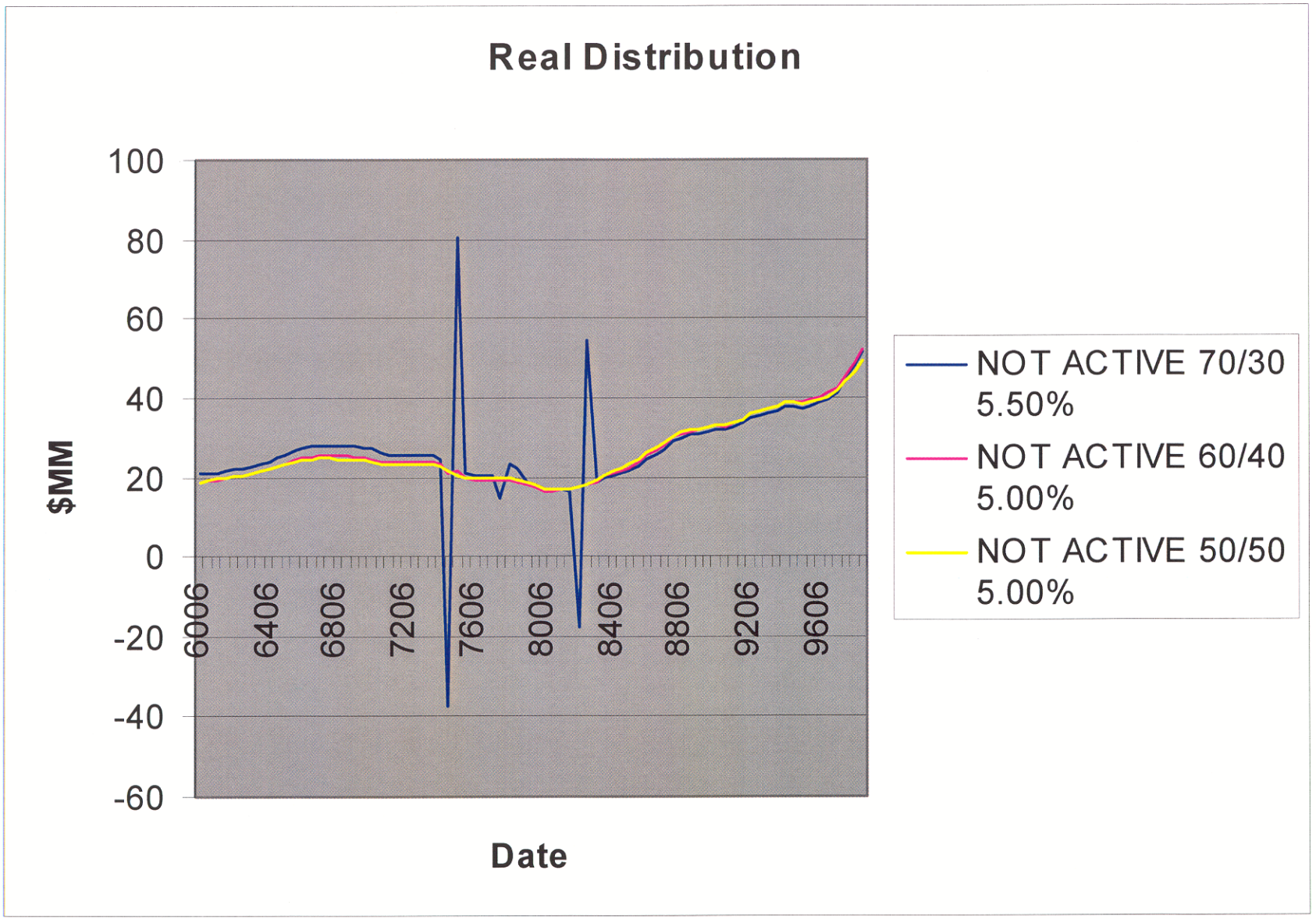
Real Distribution
100
80
60
40
20
0
-20
-40
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6006
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Date
NOT ACTIVE 70/30 5.50%
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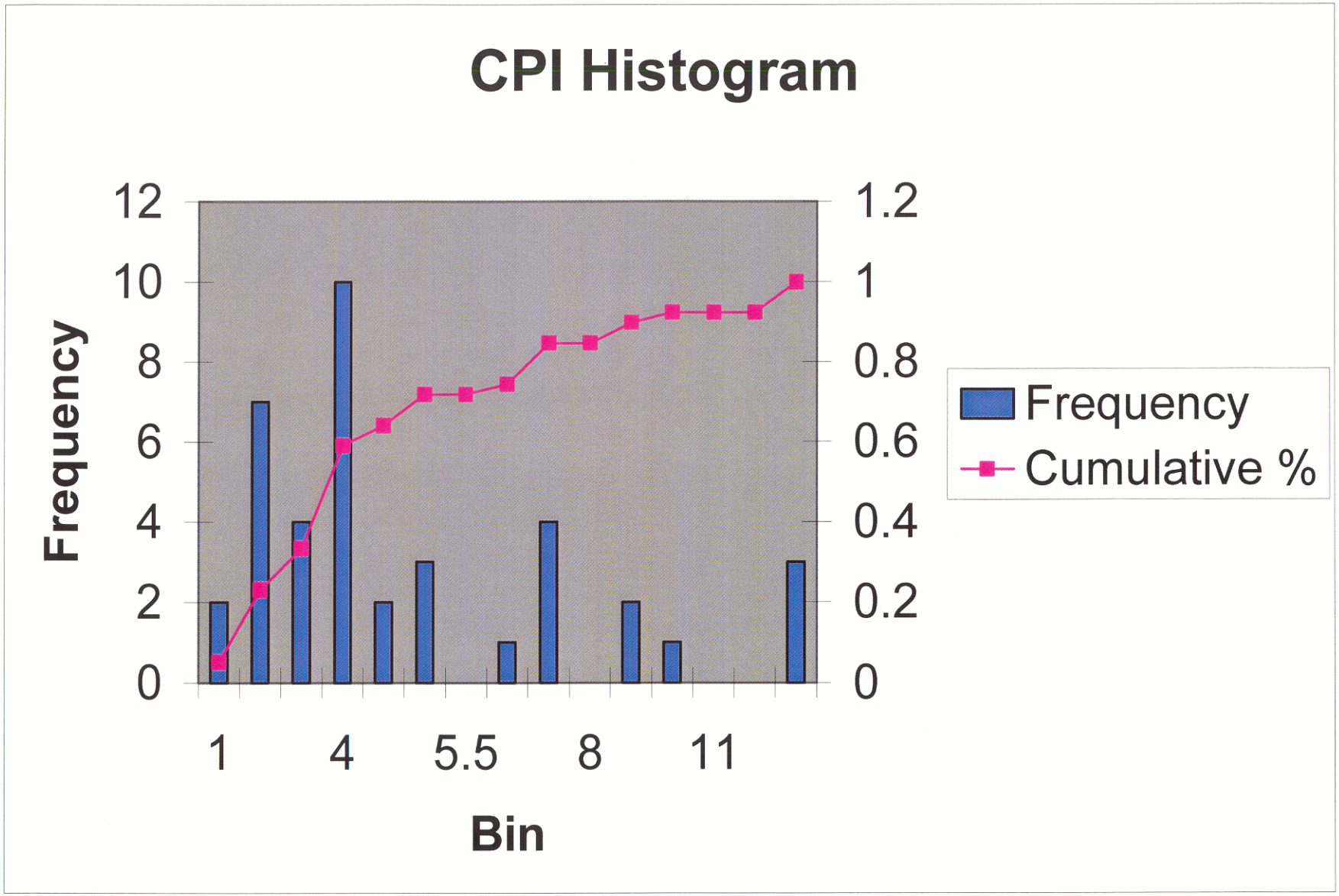
CPI Histogram
Frequency
12
10
8
6
4
2
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1.2
1
0.8
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1
4
5.5
8
11
Bin
Frequency
Cumulative %

2. Preliminary VSP Design Results (Phase 0)

The following information, in tandem with Section 1 above, constitutes the VSP project Phase 0 tasks which The QInsight Group contracted to deliver to the EFIB on October 15, 1999.

2.1 Objectives for the State of Idaho Endowment Funds

There are three primary spending policy objectives proposed for the state of Idaho endowment funds.

- **Maintenance of endowment purchasing power** - The principal funds are required to grow at an annual rate equal to the sum of the expected annual price increases (as determined initially by a general inflation index and later by a weighted index for specific funds) and the expected annual population growth rate (initially the general Idaho population growth and later a weighted growth rate for specific funds).

- **Maintaining fair and equitable inter-generation funding** - The spending rate for current beneficiaries is set at a level and growth rate that can be maintained for an extended period of time without jeopardizing the long-term growth required in the principal funds. The spending rate is based on a moving average of the market value of the principal and earnings reserve funds.

- **Achieving smooth and predictable spending** - earnings reserve fund is established at a level designed to maintain as smooth a spending rate as is possible in volatile capital markets. The target level of the earnings reserve fund is also set to provide for the growth of the permanent endowment funds at an annual rate that is a sum of the specified price and population indexes.

2.2 Impact of a new VSP on the Endowment Fund Investment Board

Allowed Investments

The new spending policy for the EFIB was developed using a model with only two asset classes:

- a domestic, large-capitalization equity asset class (the S&P 500 index), and

- an intermediate-duration aggregated government/corporate bond asset class (the Lehman Intermediate Government/Corporate index). The intermediate index was selected because it provided 95% of the returns of long-duration securities at less than 70% of the volatility.

The EFIB has not yet approved a long-term, targeted asset allocation policy, but The QInsight Group is recommending either a 60% equity/40% fixed-income or a 70% equity/30% fixed-income policy. These ranges were chosen based on achieving a balance between the need for the endowment principal funds and the annual beneficiary spending to increase at annual rates equal to or exceeding the increase in a general price index plus the Idaho population growth rate.

However, ex-post asset allocation studies have validated that it is possible to achieve the same level of risk (as measured by semi-deviation or standard deviation) as a combination of the above two asset classes with significantly higher returns using a broader group of asset classes. See Appendix D for a detailed discussion of the recommended asset classes.

Asset Allocation, Liquidity Requirements and Re-Balancing

Both the permanent endowment and the earnings reserve funds are long-term investments. Therefore, it is important that these funds be re-balanced to the targeted asset allocation at least twice a year. Therefore, the asset managers chosen for each asset class may be required to offer a multi asset class capability to minimize the periodic shifting of funds between asset managers.

The need to re-balance the funds adds a definite liquidity requirement to all the securities purchased by the asset managers. The specific liquidity requirements should be included in the investment policy for each asset manager. All securities must have readily ascertainable market values and be easily marketed. All securities must have adequate market liquidity relative to the size of the investment. The asset managers for the small-and mid-capitalization asset classes often have difficulty complying with these liquidity requirements as they may own a substantial percentage of the outstanding shares of a corporation or they may own shares that are "thinly-traded".

It is also important that both the permanent endowment and the earnings reserve funds be maintained with the same allowable investments and in approximately the same percentage allocations as the earnings reserve funds will represent a significant proportion of the entire portfolio.

Cash Management Policy

The EFIB will be maintaining relatively short duration funds to be used for payment of operating expenses and management fees. A separate investment policy should be adopted for these funds specifying liquidity requirements, quality ratings, and appropriate benchmarks for performance reporting.

A Sources and Uses of Cash report that projects cash needs for at least the next eighteen months should be prepared and updated regularly to serve as the planning document for the cash investments.

Guidelines and Ranges for Asset Classes and Performance Reporting

The Endowment Fund Investment Board does not intend to use market timing as an investment policy. However, the investment policy should recognize that tactical asset allocation based on the US business cycle could be used to enhance returns and/or reduce risk. The University of Chicago and the Chicago Federal Reserve have also recently reported that multi-factor models based on the US business cycle may outperform traditional static portfolios. As an example, The QInsight Group has determined that broad asset class returns vary substantially across the different phases of the US business cycle defined by industrial production, interest rates and the adjusted monetary base.

The investment policy should provide the flexibility for tactical asset allocation by specifying ranges for the asset classes rather than single asset allocation percentages. The following ranges are recommended for the major asset classes:

• Asset Category	Minimum	Maximum	Target
• Equities – all classes	40%	80%	70%
• Fixed Income – all classes	20%	60%	30%

The incremental return or risk reduction provided by the tactical asset allocation policy should be reported in the performance reporting system used by the Idaho Endowment Fund Investment Board. The "attribution analysis" portion of the periodic performance reports must accurately report on the asset allocation policy contribution.

2.3 Endowment and Foundation "Best Practices" Survey

The VSP project "Best Practices" summary survey presented below was developed for the following list of information sources and documents, which include:

- Investment Policy by Charles Ellis, 1985
- Finances, Portfolio Composition, Investment Management and Administrative Expenses in Private Foundations, Foundation Management Series, 9th Edition, Volume I, The Council on Foundations, 1998
- Spending Policies and Investment Planning for Foundations: A Structure for Determining a Foundation's Asset Mix, The Council on Foundations, 1995
- 1998 NACUBO Endowment Study, National Association of College and University Business Officers, 1999
- Selected Policies for the Management of Long-Term Financial Assets of Colleges and Universities, National Association of College and University Business Officers, 1992
- "Money Market Directory of Pension Funds and their Investment Managers," 29th Edition, Money Market Directories, Inc., 1999
- "A Multi-asset Class Approach to Endowment & Foundation Investments: Does Diversification Work When You Need it Most?" H. Valieras and K. Engebretson, 1999
- Selecting and Evaluating Investment Managers, The National Association of College and University Budget Officers

Effective Endowment Management Process

The most important task which investment managers are charged with, according to Charles Ellis (Investment Policy 1985), can be divided into four parts: (1) understanding the needs of their institution; (2) defining realistic investment objectives that can meet institutional requirements; (3) constructing the most appropriate asset allocation model and asset mix for each particular portfolio; and (4) developing well-reasoned, sensible investment policies designed to achieve an institution's realistic and specific long-term investment objectives.

To accomplish this task, Mr. Ellis identifies six questions investment managers must answer in thinking about how to manage an Endowment or Foundation portfolio. They are:

- What are the real risks of an adverse outcome, particularly in the short run?
- What are the probable emotional reactions from constituency groups to adverse experiences?
- How knowledgeable about investments and markets is the trustee investment committee?
- What other liquid resources or reserves does the institution have and how important is the endowment income to the institution's *over-all* financial position?
- What legal restrictions or requirements must be incorporated in the investment policy?
- Are there any unanticipated consequences of interim fluctuations in portfolio value that might effect investment policy

In addition to these points, David Salem, President and CEO of the Investment Fund for Foundations, notes that endowment investment committees must not only consider the needs of current stakeholders, but also those of future generations. And that a by-product of carrying out their fiduciary obligation (realistic spending policies and a total return philosophy) is the commitment of future generations to make charitable donations to the institution.

Clearly Defined Role for an Endowment or Foundation Investment Committee

The greatest impact an investment committee can have on portfolio performance based on current literature, and therefore where it should spend most of its time, is in defining investment objectives and constructing an asset allocation model. Numerous studies have shown the asset mix –i.e. the mix of stocks versus bonds is an important factor determining the risk and return of the portfolio.

With regard to investment objectives, the investment committee use them to establish investment performance measures in order to assess investment managers' performance and determine whether or not an asset classes remains viable with regard to the portfolio's over-all investment objectives.

Clearly Articulated Investment Policies

Institutions develop investment policies to (a) establish standards for evaluating managers and (b) to define what the institution's long term investment goals should be. They include:

- Asset allocation policy
- Levels of market risk
- Risk tolerance to changing economic conditions
- Individual asset class risk and expected returns within an over-all portfolio structure

Effective Risk Management Strategies

Investors cannot totally eliminate market risk, but they can minimize individual stock and stock group risk through their asset allocation process. The level of risk built into a portfolio is directly related to its return target. Investors can choose among (:

- risk-free return
- market pricing volatility risk/return
- stock group selection risk return
- individual stock selection risk/return

Appropriate Asset Allocation Model

The single most important dimension of investment policy is asset mix, particularly the ratio of fixed-income investments to equity. Discussions of asset mix have attracted considerable attention in recent years.... (the) analysis has shown that over and over again the trade-off between risk and reward is driven by one factor, time. (Charles D. Ellis – Investment Policy 1985)

The concept of time will be discussed later. With regard to asset allocation, Endowments and Foundations for the past forty years have diversified both by asset class and, within asset class, by economic sector, industry, manager philosophy and market capitalization. This is based on Harry Markowitz's study that showed that diversification limits specific risk associated with any one asset class by reducing correlation between asset classes within the portfolio.

According to the 1998 NACUBO Endowment Study, educational institutions with assets between $300 million and $1 billion dollars, similar in magnitude to the Idaho Endowment, allocate their assets in the following manner.

ASSET	% OF INSTITUTIONS	ASSET	% OF INSTITUTIONS
US Stock	47.5	Venture Capital	1.8
Non-US Stock	13.4	Non Venture Private Equity	1.1
US Bonds	19.0	Hedge Funds	4.3
Non US Bonds	2.3	High-Yield Bonds	0.6
US Cash & Equivalents	4.6	Oil & Gas Partnerships	0.4
Private Real Estate	1.8	Distressed Securities	1.0
Public Real Estate	0.7	Arbitrage	1.0
Mortgage Real Estate	0.1	Other	0.4
Faculty Mortgage	0.1		

Formal Manager Selection Process

The National Association of College and University Budget Officers' Selecting and Evaluating Investment Managers found that choosing a manager was a "subjective" process, where past performance had little or not predictive value. It also concluded that investment returns could only be used to confirm or reject impressions regarding a manager's performance, people, philosophy and process.

Their study of best practices recommends a disciplined approach for selecting a manager that includes the following steps:

- Identify type and number of managers to be hired based on Investment Policy guidelines
- Compile list of candidates and comparative data about them (model RFP attached)(*)
- Conduct due diligence to narrow list of finalists – manageable group(*)
- Conduct due diligence on finalists(*)
- Finalists make presentation to Investment Committee(*)
- Selection and contract negotiations
- (*) Indicates a potential role for a consultant

Realistic Spending Policy

In his book Investment Policy 1985, Charles Ellis wrote that spending decisions should most definitely be governed by investment results - which follow from investment policies... Despite this viewpoint, spending policies many times are effected by:

- projections of cashflow requirements
- budgetary expenditure pressures
- donor requirements for expendable resources

Today, over 70% of higher education institutions spend a pre-specified percentage of a moving average (3-5 years or 12/20 quarters) of market value. Some modify this formula by using a secondary measure, which is an annual growth (inflation) percentage usually tied to budget. According to the 1998 NACUBO Endowment Study, educational spending policies were oriented along the following guidelines:

	% of Institutions
• Income-oriented	
❑ Spend all current income	2.7%
❑ Spend a pre-specified percentage of income	1.9%
• Market-value-oriented	
❑ Spend a pre-specified percentage of beginning market value	4.2%
❑ Spend a pre-specified percentage of moving-avg. market value	71.2%
• Budget-oriented	
❑ Increase spending over prior year's by a pre-specified percentage	6.5%
❑ Decide on an appropriate rate each year	5.1%
• Indeterminate	
❑ Other rule	8.0%
❑ No established policy	0.4%

Advantages and Disadvantages of Various Spending Policies

Each of the four spending policy orientations described in the previous section offers various benefits and drawbacks.

- Income-oriented spending policies are based on income earned. It is quite possible that the use of such formulae could result in asset-allocation policies that are less than optimal, biased too much toward income and not enough toward total return.
- Spending a pre-specified percentage of moving-average market value is the most commonly used type of formula. The major benefit of a moving-average-market-value spending policy would appear to be that it reduces the volatility of distributions and produces a stabilizing effect in declining markets.
- Budget-oriented formulae may be related to prior years' distributions. Such a structure may be appealing from a budgetary perspective, but it is slightly less attractive from an investment perspective, because such formulae make investment decisions dependent on operational decisions.
- General commentary on indeterminate orientations is difficult because they incorporate a variety of non-specific policies.

Realistic Time Horizon – Economic Cycle

The most important investment variable is the time horizon over which the fund hopes to meet its objectives. Fortunately, this variable can be controlled. For example, a one-year time horizon may be unrealistic. The variability of capital market returns is such that one cannot preserve the purchasing power of the fund every single year, year after year. However, whether the time horizon is more realistically defined as three or perhaps five years depends, is dependent, to some extent, on the tenure of the investment committee's members. Some committees rotate every three, four, five years; other committees have members serve indefinitely. The other factor that determines a practical time horizon is the fact that the committee may become restless and nervous if things aren't working over a moderate time period, say, from two to three years. It is this latter point that is often used by Endowment and Foundation investment managers as a "rule of thumb" in tracking a portfolio manager's performance.

Effective Performance Measurement Tools/Benchmarks

There are several key practices that the National Association of College and University Business Officers suggest endowment manager employ when assessing a manager's performance:

- Evaluate performance over a reasonable time frame 3-5-10 years, with closer attention paid to the near term numbers.
- Look at year-to-year numbers for consistency and to adjust for the effects of compounding.
- Review risk adjusted returns for unusual combinations of risk and return, as this will be a better barometer of an investment manager style than one of performance.
- Compare investment managers with managers using a similar investment approach and style in the same asset class.
- Insure that the benchmark the portfolio manager chooses conforms to the institution's investment guidelines and manager's style.
- Continually monitor the investment firm for any changes in personnel or philosophy that could impact the investment strategy employed by the portfolio manager

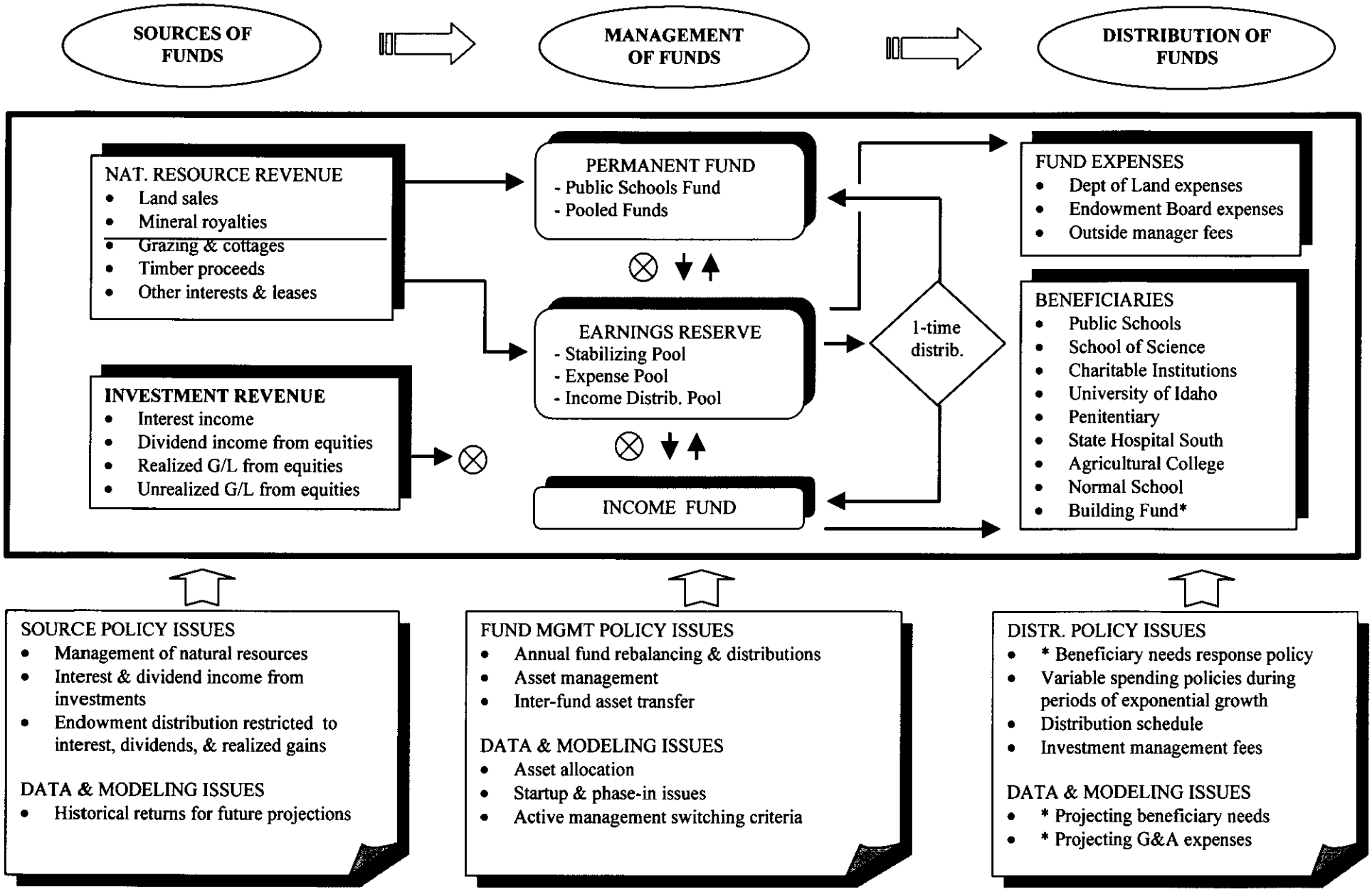
2.4 Idaho Endowment Fund Flow Model

Fund Flow Model

An Idaho Endowment fund flow model was developed in order to highlight the policy, data, and modeling issues relevant to the VSP project. It is shown in figure 2.4-1. The left side of the diagram addresses the issues relevant to the sources of funds, the middle of the diagram addresses those issues relevant to the management of the funds, and the right side of the diagram addresses issues relevant to the distribution of the funds.

Issues

Based on an evaluation of the funds flow model, there are several key policy decisions that the board will need to address in designing the VSP. Those include sources of funds issues, management of funds issues, and distribution of funds issues. The issues are highlighted in figure 2.4-1, the Idaho VSP fund flow model diagram, and discussed in more depth in the subsequent three tables 2.4-1through 2.4-3.



IDAHO VSP FUND FLOW MODEL: POLICY, DATA, AND MODELING ISSUES

Table 2.4-1: SOURCES OF FUNDS ISSUES

POLICY ISSUE	PROBLEM	OPTIONS & RECOMMEND.
Management of natural resources	Endowment highly sensitive to timber sale stability and sustainability	Cannot predict pricing and harvest dates accurately, must continuously monitor and budget
Interest & dividend income from investments	Cash management of large sum	Cash management needs separate policies and budgets
Endowment distribution restricted to interest, dividends, & realized gains	Non-standard unrealized gains restrictions, Title 33 vs. 57	Two sets of books required, standard practice to maintain internal and external accounts
DATA & MODELING ISSUE	PROBLEM	OPTIONS & RECOMMEND.
Historical returns for future projections	Select relevant historical time frames and contexts for modeling & simulations,	Select time frames reflecting current characteristics in terms of secular changes, government regulations & investment habits

Table 2.4-2: MANAGEMENT OF FUNDS ISSUES

POLICY ISSUE	PROBLEM	OPTIONS & RECOMMEND.
Annual fund re-balancing & distributions	Annual volatility	3 year smoothing & averaging
Asset management	Active vs. passive management Cash & equity management Performance monitoring	High liquidity investments & flexible invest. managers Where possible, hire outside mgrs w/debt & equity capabilities Hire Manager of Managers
Inter-fund asset transfer	Bill 463 vs. VSP model definitions	Two sets of books required, standard practice to maintain internal and external accounts
DATA & MODELING ISSUES	PROBLEM	OPTIONS & RECOMMEND.
Asset allocation	Allowable assets and ratio ranges	Modeling & simulation recommendations (phase 1 SOW)
Startup & phase-in issues	Initial ER threshold & distribution percentages	Modeling & simulation recommendations (phase 1 SOW)
Active management switching criteria	Inflation switching thresholds and appropriate asset ratios	Modeling & simulation recommendations (phase 1 SOW)

Table 2.4-3: FUND DISTRIBUTION ISSUES

POLICY ISSUE	PROBLEM	OPTIONS & RECOMMEND.
* Beneficiary needs response policy	Response to varying beneficiary needs (pop. growth & inflation)	Proactive (projected), reactive (real time), or non-reactive (fixed)
Variable spending policies during periods of exponential growth	How to distribute embarrassment of riches	Raising base spending rate, 1-time distribution, or contribute to permanent fund (phase 1 SOW)
Distribution schedule	Board convenience or beneficiary convenience	Status quo, monthly, quarterly, semi-annually
Investment management fees	FY2000 legislative limits Active mgmt variability	Consulting fees or deferred fees Flexible investment managers
DATA & MODELING ISSUES	PROBLEM	OPTIONS & RECOMMEND.
* Projecting beneficiary needs	Number of funds to model	Pooled (2) or statistical clustering
* Projecting G&A expenses	Dept of Lands	Historical growth or anticipated growth

2.5 Idaho Sources and Uses of Funds

A survey of both the Idaho Department of Lands and the Idaho Endowment Fund beneficiaries was performed as part of the Preliminary VSP Assessment Project. Information on the historical and projected sources and uses of funds was solicited in order to help The QInsight Group develop an initial Idaho specific quantitative model, generate realistic cash flow projections, and perform parameter sensitivity studies. The participants in the survey were assured that the information and estimates they provided did not constitute a formal cost or needs projection on behalf of their organization or agency. The QInsight Group wishes to thank both the Department of Lands as well as each endowment beneficiary for taking our request for information seriously and responding in a timely manner.

Sources of Funds Survey

The Department of Lands provides five separate revenue streams to the Idaho endowment funds: 1) land sales 2) mineral royalties, 3) grazing and cottages, 4) timber proceeds, and, 5) other interests and leases. By far, the largest revenue stream is generated by stumpage, i.e. timber sold to commercial logging operators. Timber is significant, not only because it contributes a majority of the Department of Lands revenues to the Endowment Fund, but because it can be viewed as an alternative investment in the Idaho Endowment Fund asset mix, providing both diversification and stabilization in times of inflation or poor equity performance.

The QInsight VSP quantitative model shows high sensitivity to the timber proceeds, making a realistic projection for that source of funds critical. Based on extensive discussions with Department of Land analysts, there are three primary considerations that determine the ability to accurately predict annualized stumpage revenue.

- Actual volume of timber harvested
- Rate paid by purchasers
- Sustainability and reforestation rates

For a summary of those issues and along with a set of Department of Lands revenue and expense statistics, please see Appendix B.

Uses of Funds Survey

Based on our interviews with the beneficiaries, several issues should be brought to the attention of the Endowment Board. First, and foremost, the most pressing concern of almost all of the beneficiaries was not necessarily the absolute magnitude of funds to be distributed, but rather the stability of the flow of those funds and whether the new VSP could address this concern. Secondly, it is clear based on the diverse nature of the fund beneficiaries that each should be surveyed on a periodic basis to determine any material changes in their unique future needs and uses. Both of these concerns are VSP policy issues at the discretion of the Endowment Board. For a discussion and preliminary summary of beneficiary historical and predicted funds uses, see Appendix C. These surveys represent preliminary results, which will be refined and validated in Phase 1 of the Idaho VSP Project.

Expenses

Both the Department of Lands and Endowment Board, in providing their services to the state of Idaho, generate expenses that must be paid out of the Endowment Funds. As with other sources and uses projections, these management and administrative expenses are subject to inflation and growth factors. Further discussions with both the Department of Lands and the EFIB are needed in order to finalize these figures. The new program to be instituted in FY2000 will result in a significant increase in costs, since much of the Department of Lands G&A will no longer be covered by general tax revenue.

2.6 Idaho State Endowment Document Review

Document Review List

The following set of documents have been reviewed in order to assess existing endowment policies and evaluate the impact on those policies when the new legislative statutes take effect in July 2000.

- Audit reports for prior 5 years for all endowment funds.
- Existing Spending Policy
- Existing Investment Policy including guidelines and asset classes.
- Copy of Idaho Uniform Prudent Investor Act
- Copy of Title 33 and Title 57 legislative documents
- Copy of House Bill No. 643, Amended
- Legal guideline correspondence of Attorney General re lending agreements and interest bearing accounts
- Copies of revised Endowment Board goals, objectives and policies.
- Current bond portfolio listing (summary and detailed).
- Current and 5 years bond historical performance reports and summaries.

Concerns

The results of the review are presented in Section 2.2, entitled "Impact of a new VSP on the EFIB." In addition to the Section 2.2 analysis, several issues should be considered by the EFIB. .

- There are several conflicting Idaho statutes that affect investment of public (Title 57) and institutional (Title 33) funds. Per Title 57, endowment distributions are restricted to current earnings (interest and dividends) and realized capital gains, which is different from institutional organizations which are allowed to also include a portion of unrealized gains in their distribution formulas. The Endowment Board may wish to have this non-standard procedure revised in the future.
- New definitions of the permanent fund, earnings reserve fund, and income fund as defined in House Bill 463 do not correspond to the fund definitions used in the variable spending policy model. An internal set of accounts will have to be created in order to administer the proposed spending policy properly. Therefore reconciliation between the statute defined accounts and the internal accounts will have to be periodically prepared.

Appendix A: Detailed Project SOW, Deliverables, and Schedule

Scope of Work & Schedule for a Variable Spending Policy

A1 Phase 0: Perform a Preliminary VSP and Develop a Project Plan

Phase & Task #	Task Description	Deliverable	Due Date
Phase 0	Prepare a 2-phase, 9-month "Project Plan" to design and implement a "Variable Spending Policy" (VSP) for the Idaho Endowment Fund Investment Board	Project Plan complete w/Statement of Work including budget and schedule	Oct 15
1	Issue a Request for Information (RFI) to several candidate consulting/CPA firms, review qualifications, and select strategic partner(s) for project	Qualified Strategic Partner(s)	Sept 15
2.1 2.2 (DT)	Obtain copies of current Idaho state documents and review the existing endowment policies and procedures. Examples include: Endowment Fund audit reports, existing Spending Policy, existing Investment Policy incl. guidelines and asset classes, relevant legislation, historical performance reports, etc. Deloitte & Touche to review state documents for endowment issues and restrictions	Library of relevant state documents	Sept 15
3	Develop preliminary Statement of Objectives for each endowment fund and obtain approval by EFIB. Preliminary objectives include: a) Maintaining endowment purchasing power b) Achieving smooth and predictable spending c) Maintaining fair and equitable inter-generation funding	Approved fund objectives for VSP	Sept 15
4.1 4.2 (CF)	Perform in-house VSP surveys to assess current state-of-the art VSP practices and procedures a) Survey VSP literature b) Survey and interview firms/clients that have implemented such a plan c) Survey of the practices, policies (spending and investment) and asset allocations for major endowments in the US (states, universities and colleges and others) focusing on those with similar VSPs. Consulting firm to perform duplicate, but external VSP survey identical to 4.1	White paper summarizing VSP design, development, and implementation issues plus a VSP Library	Oct 1
5.1	Perform survey of each Idaho fund endowment, assessing each source of funds to establish basis for cash flow/spending projections a) Assess history, status quo, anticipated modifications in endowment laws, changes in sources of funds, and	White paper summarizing fund source - historical performance, changes, and projections for each fund	Oct 1

	changes in distributions of funds (incl. benefits, payroll and management expenses) b) Assess accounting practices and procedures (for each class of assets) c) Establish basis for projections including relevant population statistics and price inflation factors for each fund (weighted average, general population, etc.)		
5.2 (DT)	Deloitte & Touche to review Idaho source of funds survey for appropriateness and oversights		
6.1	Perform survey of each Idaho fund endowment, assessing each to establish basis for distribution and uses of funds a) Establish basis for projected expenses including endowment staff benefits and payroll b) Accounting procedures and methods of payment c) Management fees (performance based)	White paper summarizing fund distribution/uses - historical performance, changes, and projections for each fund	Oct 1
6.2 (DT)	Deloitte & Touche to review Idaho use/distribution of funds survey for appropriateness and oversights		
7	Interview endowment management to establish new VSP impact on investment practices a) Allowed investments b) Guidelines/ranges for major asset classes c) Impact of any legal restrictions on asset classes	White paper summarizing new VSP driven investment issues and practices for each fund	Oct 1
8.1	Design and prepare a representative quantitative sample "VSP" using preliminary data obtained in survey tasks performed above	Program a quantitative prototype VSP model for Idaho	Oct 1
8.2 (DT)	Deloitte & Touche to review Idaho prototype VSP for appropriateness and oversights		
8.3 (CF)	Consulting firm to review Idaho prototype VSP for forecasting criteria, fund management criteria, cash management criteria, asset selection criteria, and spending policy criteria, etc.		
9	Prepare and distribute for review a preliminary VSP "Project Plan" integrating White Papers and Survey results from above. Preliminary Project Plan to include a) Background and Philosophy for a VSP b) Phase 1 Description - VSP System Design & Development of a Detailed Implementation Plan c) Phase 2 - Implementation and Staff Training Plan d) Project Organization (including team members, staffing and state support requirements) e) Project Data Requirements and Assumptions f) Project Plan SOW Task Summary and Deliverables g) Project Schedule and Budget h) Project Management & Status Review Schedule i) Appendices (white papers including: A Representative VSP for Idaho, VSP Best Practices, Fund cash flow and spending projections, and Changes to fund investment policies as a result of VSP)	Preliminary VSP "Project Plan" document	Oct 7
10.1	Perform a joint review of the preliminary VSP "Project Plan" in conjunction with strategic partner(s) and	Recommendations and modifications re "Project Plan"	Oct 11

	appropriate staff a) Critique "Project Plan" elements in a one-day joint review b) Survey customer to determine fine or course grain preferences re level of asset studies (capitalization and style) and asset manager reviews (benchmarking). Note: These studies should be budgeted and billed separately.	elements including design, implementation, schedule, and budgets	
10.2 (DT)	Incorporate feedback on Project Plan from Deloitte & Touche		
10.3 (CF)	Incorporate feedback on Project Plan from Consulting Firm		
11	Finalize the 2 Phase, 8 Month "Project Plan" to design and implement a "Variable Spending Policy" (VSP) for the EFIB a) Submit the final Project Plan to EFIB for approval and funding b) Prepare presentation materials for "dog and pony" show	Final VSP "Project Plan" document including budget and schedule for each of the 2 project phases	Oct 15
		PHASE 0 TOTALS	Oct 15

A2 Phase 1: Complete the VSP System Design & Detailed Implementation Plan

Phase or Task #	Task Description	Deliverable	Date
Phase 1	Complete the VSP system design & develop a detailed implementation plan		
1	Prepare the quantitative study for the investment of the various funds using assumptions and data gathered in the above steps. Determine the appropriate historical period for the study. Determine the asset classes to be included and prepare the historical indexes for each class.	Refine VSP model and input data to reflect Idaho specific realities	
2	Prepare the quantitative study for the appropriate level of the earnings reserve fund using either a "worst case" review and/or a Monte Carlo simulation. Determine the probability of under-performing the proposed spending rate.	Establish the Earnings Reserve steady state level	
3	Update the investment policy with allowed asset classes and a range of percentages for each asset class.	Prepare a VSP model for annual revision and use by Endowment Board and generate actual Idaho asset class mix and allowable ranges	
4	Draft a Macro-level steady-state VSP using the quantitative study prepared above, along with a management & review policy including: a) Annual VSP model update requirements & procedures b) Annual VSP performance review procedures c) Annual Investment Manager performance review procedure	- Variable Spending Policy - Cash Management Policy - Investment Policy (Hi Level) - Accounting Policy - Sources & Uses Policy - Annual Management & Review Policy	
5	Draft detailed phase-in VSP, along with transitional phase-in plan and schedule, and assess impact on Idaho state employees, investment managers, and other involved parties	- Phase-in Policies (see step 4) - Phase-in Plan & Schedule	
6	Deloitte & Touche to prepare accounting infrastructure for VSP	- Develop accounting procedures - Develop chart of accounts - Develop an accounting manual	
7	Consulting firm to provide review of steps 3 through 6 above		
8	Write up complete plan and present to EFIB	Complete Policy Manual	
		PHASE 1 SUBTOTALS	
Phase 1 Optional Task	Develop and draft a detailed micro-level Investment Policy interface for the EFIB (in cooperation with selected Asset Management Firm)	- Prepare micro-level asset class benchmarks and performance guidelines. - Prepare list of detailed micro-level asset classes (by capitalization and style) to input to management search.	

A3 Phase 2: Complete the VSP System Installation and Training Program

Phase or Task #	Task Description	Deliverable	Date
Phase 2	Complete the VSP System installation and training program	Operational VSP system complete with trained staff	July 2000
1	Draft VSP procedures and training plan		
2	Introduce and distribute VSP policy documents to relevant staff and managers		
3	Implement VSP Macro-level benchmarking and review system and schedule		
		PHASE 2 SUBTOTALS	
Phase 2 Optional Task	Task 1 – Train staff and investment managers in Variable Spending policy and procedures Task 2 – Meet and coordinate w/beneficiary managers and staff to explain VSP and discuss annual planning and budgeting requirements		
		PHASE 2 OPTIONAL SUBTOTALS	

Appendix B Department of Lands Sources & Uses of Funds Survey

B1 Primary Considerations

The dominant revenue stream from the Department of Lands that flow into the Idaho state endowments is from timber sale revenues known as "stumpage." The VSP model is highly sensitive to this revenue stream. Three primary considerations determine the ability to accurately predict annualized stumpage revenue:

- The actual volume harvested – The year to year timber harvest for Idaho lands fluctuates a great deal. Although the Department of Lands strives to sell a relatively stable volume from year to year, market forces drive the timing of the actual harvest experienced by the individual purchaser. Since Idaho does receive revenues until the timber is actually harvested, the time between contract and harvest is unknown. Currently, Idaho is selling approximately 165 million board feet per year. It is anticipated that will increase moderately over the next 10-15 years. Department of Lands analysts would not be surprised to see a sustainable annual sales figure of 175 to 180 million board feet.

- The rate per thousand board feet paid by the purchasers – The factors that impact this rate are many. Typically, as interest rates decrease and housing starts go up, the demand for lumber increases so that purchasers are willing to pay higher rates for the raw stumpage material. However, this has not always been the case. A variety of other supply factors also play into the market, such as imports for foreign countries and sales from federal lands. Over the last decade, the federal government has drastically reduced their sales of timber. An abrupt increase in the interest in Idaho timber occurred when the Spotted Owl issue closed down a number of federal timber sales on the coast. Unless there is some significant change in the factors that currently impede the federal government from offering significant quantities of timber for sale, the Department of Lands believes Idaho will undoubtedly continue to see its timber in greater demand than it was in the years prior to the 1990s.

- Sustainability and reforestation rates – Because Idaho replants cut lands, timber sales may well continue into perpetuity. However, because forested lands in Idaho are inhomogeneous and sometimes subject to acts of god (such as fires), reforestation growth rates and time to maturity vary considerably, making it difficult to guarantee a stable volume of sales from year to year.

B2 Projections

The following set of Department of Lands revenue and expense statistics was provided by Ms. Sheri Wakagawa, a financial analyst in the Fiscal Office, and Mr. Winston Wiggins, Assistant Director, Forestry and Fire. Key assumptions include a 5% per annum increase in Timber Sales and a 3.5% per annum increase in Department of Lands expenses. These tables are initial estimates and may be subject to revision. Additional data input will be solicited in the future, as a more detailed VSP model is developed.

Table B2-1: Revenue and expense projections for the Idaho Department of Lands

	Fiscal Year	1,999	2,000	2,001	2,002	2,003	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023	2024-2028
1	Timber Sales	56,643,015	59,475,166	62,448,924	65,571,370	68,849,939	312,988,414	399,461,342	509,825,145	650,680,433	830,451,440	1,059,889,861
2	Mineral Royalties	1,277,095	1,000,000	1,200,000	1,242,000	1,285,500	6,004,595	7,134,700	7,384,400	7,642,900	7,910,400	8,187,300
3	Land Sales	730,119	820,783	737,808	773,115	579,952	3,641,777	1,590,702	463,788	63,779	0	0
4	Grazing/Cropland	1,356,979	1,404,500	1,453,700	1,504,600	1,557,300	7,277,079	8,643,300	8,945,800	9,258,900	9,583,900	9,918,400
5	Cottage Rents	1,672,845	1,731,400	1,792,000	1,854,700	1,919,600	8,970,545	10,654,100	11,027,000	11,412,900	11,812,400	12,225,800
6	Commercial/Misc.	559,095	578,700	599,000	620,000	641,700	2,998,495	3,661,600	3,686,200	3,815,200	3,948,700	4,086,900
7	Mineral Rents	75,654	78,300	81,000	83,800	86,700	405,454	481,200	498,000	515,400	533,400	552,100
8	Timber/Land Sales Interest	9,383,033										
	TOTAL REV	71,697,835	65,088,849	68,312,432	71,649,585	74,920,691	342,286,359	431,626,944	541,830,333	683,389,512	864,240,240	1,094,860,361
	TOTAL EXP	12,297,000	12,727,395	13,172,854	13,633,904	14,111,090	65,942,243	84,160,869	107,412,965	137,089,187	174,964,402	223,303,840
	NET REV - EXP	59,400,835	52,361,454	55,139,578	58,015,682	60,809,600	276,344,116	347,466,075	434,417,368	546,300,325	689,275,838	871,556,521

Appendix C Beneficiary Uses of Funds Survey

Based on our interviews with the beneficiaries, several issues should be brought to the attention of the Endowment Board. First, and foremost, the most pressing concern of almost all of the beneficiaries was not necessarily the absolute magnitude of funds to be distributed, but rather the stability of the flow of those funds and whether the new VSP could address this concern. Secondly, it is clear based on the diverse nature of the fund beneficiaries that each should be surveyed on a periodic basis to determine any material changes in their unique future needs and uses. Both of these concerns are VSP policy issues at the discretion of the Endowment Board. These surveys represent preliminary results, which will be refined and validated in Phase 1 of the Idaho VSP Project.

C1 State Wide Demographics and Price Report

To help analyze and review beneficiary specific growth and inflation projections, we solicited state wide demographic and price data from the Idaho Governor's Office, Division of Financial Management. Mr. Derek Santos, an Analyst, kindly provided the data set to the Endowment Board, which forwarded the information to QInsight. The data is presented in Table C1.

C2 Public School Fund

The Public School Fund beneficiaries include the Department of Education and the State Board of Education. Mr. Keith Hasselquist, Chief Fiscal Officer, provided the data for the State Board of Education. Mr. Hasselquist specified that the same data was also representative of the endowment needs for many of the pooled fund higher education beneficiaries, including: the Lewis-Clark State College Normal School Fund, the Agricultural College, the School of Science, and the University of Idaho, as well as several of the Charitable Organizations, such as the School for the Deaf & Blind. See Tables C2-1 and C2-2 for historical and projected data relevant to State Board of Education Public School Fund.

Mr. Timothy Hill, Bureau Chief, Public School Finance, provided the data for the Public Schools Department of Education. The projections for the Public Schools was particularly difficult, not because of growth or inflation factors, but because the Idaho teacher salaries are appreciably under the national averages, even after taking into account local cost of living factors. See Table C2-3 and C2-4.

C3 Pooled Funds

The Pooled Fund beneficiaries include some eight (8) different funds, each with their own historical and projected growth and inflation statistics. Those funds demonstrating similar statistical use projections were categorized into several sub-pool categories. With the exception of the Building Fund, the sub-pool categories are described below, along with their relevant historical and projected data.

Sub-Pooled Fund Category A
Sub-Pool A consists of the following funds:
1. The School of Science
2. The University of Idaho
3. The Agricultural College Fund, and
4. The Lewis-Clark State College Normal School Fund

The data for Sub-Pool A is derived primarily from information provided by Mr. Keith Hasselquist, Chief Fiscal Officer for the State Board of Education. The data is identical to the growth and inflation figures presented in Tables C2-1 and C2-2.

Sub-Pooled Fund Category B
Sub-Pool B consists of the Charitable Funds including:
1. The Veterans Home (see tables CB-1and CB-2)
2. The State Hospital North (see tables CB-3 and CB-4)
3. The School for Deaf & Blind (no current data yet)
4. The Juvenile Corrections Center (see tables CB-5 and CB-6)
5. Idaho State University (see Tables C2-1 and C2-2.)

The data for Sub-Pool B beneficiaries 1 through 3 was provided by Mr. Richard Humiston, Bureau Chief, Department of Health and Welfare, Division of Management Services, Bureau of Financial Services. The data for Sub-Pool B beneficiary 4 was provided by Donna McRae, an Accountant for the Juvenile Corrections Center, Division of Administration, and for beneficiary 5, by Keith Hasselquist, Chief Fiscal Officer for the State Board of Education. It should be noted the first three beneficiaries are driven by similar considerations. They are growth independent (no planned capital expenditures or facility expansion) and highly correlated to the medical price index because of the services they provide.

Sub-Pooled Fund Category C
Sub-Pool C consists of only one fund, the Penitentiary Fund. The data for the Penitentiary Fund was supplied by Mr. Steve Bellomy, a Management Analyst for the Department of Corrections. The projections for Penitentiary Fund uses is quite complex due a mixture of several existing facilities, maintained and operated by the state, along with a newly constructed Boise City penal facility, which will be maintained and operated by private contractors. The facilities reflected in the growth and inflation statistics include the Idaho State Correctional Institution (ISCI), the South Idaho Correctional Institution (SICI), and the new privately operated medium custody facility. Various private and bond financing, to be phased in over the next several years, complicates the analysis. See tables CC-1 and CC-2.

Sub-Pooled Fund Category D
Sub-Pool D consists of only one fund, the State Hospital South. The data for the State Hospital South was provided by Mr. Richard Humiston, Bureau Chief, Department of Health and Welfare, Division of Management Services, Bureau of Financial Services. The primary considerations driving the projections for the State Hospital South are identical to those for the Veterans Home and the State Hospital North, discussed in above. See tables CD-1 and CD-2.

Expense Survey
Both the Department of Lands and Endowment Board, in providing their services to the state of Idaho, generate expenses that must be paid out of the Endowment Funds. As with other sources and uses projections, these management and administrative expenses are subject to inflation and growth factors.

Table C1: Historical and Projected Data for the State of Idaho

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Population growth index (Idaho)	1.025	1.02	1.019	1.016	1.04	1.013	1.02	1.02	1.02	1.02	1.02
Population growth index, ages 0-15 (Idaho)	1.007	1.006	1.01	1.006	1.004	1.005	1.002	1.002	1.003	1.002	1.001
Population growth index, ages 15-24 (Idaho)	1.046	1.032	1.029	1.031	1.031	1.024	1.028	1.023	1.023	1.021	1.019
Consumer price inflation index (US)	1.03	1.03	1.024	1.017	1.02	1.021	1.021	1.022	1.023	1.023	1.024
Wage index for state & local govern. (US)	1.031	1.05	1.01	1.027	1.03	1.035	1.037	1.037	1.036	1.037	1.036

Table C2-1: Historical and Projected Data for the Public School Fund (Higher Education Institutions)

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Fund distribution ($M)	8.8	9.6	10.5	10.6	11.4	12.30	12.93	13.60	14.32	15.01
Annual population growth index in %	.0332	.0335	.0338	.0338	.0344	2	2	2	2	2
Annual inflation index in % (CPI + 1%)	N/A	N/A	N/A	N/A	N/A	3.1	3.1	3.2	3.3	3.3
Combined Fund index growth factor	N/A	8.1	8.4	.01	6.5	4.1	4.1	4.2	4.3	4.3

Table C2-2: Key Considerations and Assumptions for the Public School Fund (Higher Education Institutions)

Item	Key Assumptions	Discussion	Data Source Reference
Primary factor(s) contributing to growth index	High School Grads & Population Growth	Minor Changes Increased Participation In-Migration	Knocking on College Door, Idaho Economic Report
Primary factor(s) contributing to inflation index	Cost of Living expenses & High ratio of labor costs to total operating expenses	80% of Budget is Personnel Costs. Will need to increase salaries to be competitive.	Standard CPI & Labor Indices

Table C2-3: Historical and Projected Data for the Public School Fund (Department of Education)

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Fund distribution ($M)	653.3	703	728.3	756	850.4	877.9	941.5	1002	1067	1136.4
Annual population growth index in %	1.55	1.10	0.89	-0.35	0.09	0.70	1.50	1.50	1.75	1.75
Annual inflation index in % (CPI + 1%)										
Combined Fund index growth factor										

Table C2-4: Key Considerations and Assumptions for the Public School Fund (Department of Education)

Primary factor(s) contributing to growth index	FY 2000 assumes a growth rate based on the previous 5 years. FY2001-2004 assumes rates of growth necessary to achieve the projected 5 year-growth rate calculated by the US Dept of Ed.	The projection from the Data Source FY 1999 is overstated (256,000 vs. 244,623 actual). Projected rates for FY 2000-2004 are based on percent change. 1999 to 2004 (256,000 to 275,000 or 7.4%)	Table 2 – Baby Boom *Echo: No End in Sight* (August 19, 1999) www.ed.gov
Primary factor(s) contributing to inflation index			
Relevant legal or legislative policy issues or restrictions			

Table CB-1: Historical and Projected Data for Veterans Services

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Actual fund distribution in dollars ($K)	465	498	702	674	605	570	550	550	550	550
Annual population growth index in %	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annual inflation index in % (% Change)	N/A	+6.5	+7.6	-2.4	+.9	+2.6	+9.5	+6	+6	+6

Table CB-2: Key Considerations and Assumptions for the Veterans Services

Item	Key Assumptions	Analytical Discussion	Data Source Reference
Primary factor(s) contributing to growth index	Population limited by facility capacity	No planned facility construction or expansion	
Primary factor(s) contributing to inflation index	Facility influenced by higher Medical inflation	Inflation shown based upon appropriation change	
Relevant legal or legislative policy issues or restrictions	Endowment funds only portion of facility costs	Change in endowment netted against General Fund in appropriation	

Table CB-3: Historical and Projected Data for State Hospital North

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Actual fund distribution in dollars ($K)	657	741	1140	960	960	1020	1015	1015	1015	1015
Annual population growth index in %	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annual inflation index in % (% Change)		+2.8	-.7	+1.6	-.2	+2.4	+12.	+6	+6	+6

Table CB-4: Key Considerations and Assumptions for State Hospital North

Item	Key Assumptions	Analytical Discussion	Data Source Reference
Primary factor(s) contributing to growth index	Population limited by facility capacity	No planned facility construction or expansion	
Primary factor(s) contributing to inflation index	Facility influenced by higher Medical inflation	Inflation shown based upon appropriation change	
Relevant legal or legislative policy issues or restrictions	Endowment funds only portion of facility costs	Change in endowment netted against General Fund in appropriation	

Table CB-5: Historical and Projected Data for the Juvenile Corrections Center

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Actual fund distribution in dollars ($K)			1040	1000	1020					
Annual population growth index in %	N/A	N/A	16	-4	0	1.5	2.0	2.0	2.0	1.9
Annual inflation index in % (% Change)	3.3	1.5	2.0	1.9	2.5	1.7	2.3	2.4	2.5	

Table CB-6: Key Considerations and Assumptions for the Juvenile Corrections Center

Item	Key Assumptions	Analytical Discussion	Data Source Reference
Primary factor(s) contributing to growth index	Juvenile population remains stable dud to small overall population increase	Based on 5 year census history and 1 yr. stability of state juvenile population	Chinn report & Census Bureau
Primary factor(s) contributing to inflation index	Idaho CPI assumed to match US CPI	Match executive/legislative annual budget requests	CPI provided by DFM for annual budget requests
Relevant legal or legislative policy issues or restrictions			

Table CC-1: Historical and Projected Data for the Penitentiary Fund

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Actual fund distribution in dollars ($M)						44.73	62.94	70.26	78.61	86.71
Annual population growth index in %							38.8	11.7	11.7	16.9
Annual inflation index in % (% Change)										

Table CC-2: Key Considerations and Assumptions for Penitentiary Fund

Item	Key Assumptions	Analytical Discussion	Data Source Reference
Primary factor(s) contributing to growth index	Inmate growth in Boise area will increase from 2347 in FY 2000 to 4477 in FY 2004, including a new facility, built by state but run privately.	Inmate growth will be concentrated in 4 Boise area facilities until land & infrastructure resources are fully utilized. Fun request based on 3% ratio to total penitentiary costs.	Projected costs based on performance measure of 3 existing facilities. Division of financial management.
Primary factor(s) contributing to inflation index			
Relevant legal or legislative policy issues or restrictions			

Table CD-1: Historical and Projected Data for State Hospital South

Data Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Actual fund distribution in dollars ($K)	1963	1774	1806	1956	1500	1717	1715	1715	1715	1715
Annual population growth index in %	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Annual inflation index in % (% Change)	N/A	+9.7	-4.5	+4.9	+2.9	+.7	+7.5	+6	+6	+6

Table CD-2: Key Considerations and Assumptions for State Hospital South

Item	Key Assumptions	Analytical Discussion	Data Source Reference
Primary factor(s) contributing to growth index	Population limited by facility capacity	No planned facility construction or expansion	
Primary factor(s) contributing to inflation index	Facility influenced by higher Medical inflation	Inflation shown based upon appropriation change	
Relevant legal or legislative policy issues or restrictions	Endowment funds only portion of facility costs	Change in endowment netted against General Fund in appropriation	

Appendix D Allowable Asset Classes

The following is a summary list of recommended asset classes appropriate for the Idaho VSP.

- Large-capitalization domestic stocks separated into value and growth style categories
- Mid-capitalization domestic stocks separated into value and growth style categories
- Small-capitalization domestic stocks separated into value and growth style categories
- Foreign equities possibly separated into:
  - small- and large-capitalization classes or
  - super-regional geographic areas such as Europe, the Pacific, etc., or
  - developed vs. emerging Markets
- US Government securities separated into short, intermediate and long-term categories
- High-grade US corporate bonds (interpreted as rated A-, BAA or higher). This category includes convertible securities in companies whose debt qualifies as "investment-grade" (as defined above) and whose convertible securities are rated no lower than one category lower than the corporate debt.
- High-yield US corporate bonds (in conservative accounts often limited to BBB rated securities and limited in maximum % allocation). If the term "investment grade" is used, it may include credit ratings to BBB and higher.
- Foreign fixed income securities (in conservative accounts often limited to government-rated securities and limited in maximum % allocation).
- Other asset categories often include commodities, managed futures, real estate, hedge funds and others. The natural resource revenues (land sales, mineral royalties, grazing fees timber proceeds and other interests and leases) contributed to the permanent endowment and earnings reserve funds by the State Board of Land Commissioners act as proxies for the commodities and real-estate asset categories. Therefore, only the managed futures asset class might be considered an additional allowed investment the Idaho Endowment funds.
- The liquidity requirements discussed in the body of the report preclude any investments in private placements or hedge funds.

Appendix E Asset Allocation Portfolio for VSP Quantitative Model

S&P 500 Index
Shearson Lehman Intermediate Government/Corporate Index
Period January 1960 to December 1998

```
PMSP Professional - Copyright 1998 (c) The QInsight Group

 Data: Monthly
 File Name: index995.dat
 File Description: S&P,CPI,Intermediate Bond Returns Monthly 1960 to
1998
 Prepared for:                                                    2:36
PM
 by:                                                          10- 8-
1999


 Portfolio # 11  50/50   ____

 Historic Observations   1 - 468

 Annualized Return        9.8371
 Monthly   Return           .7850
 Terminal Wealth         42.7150
 Standard Deviation       2.4986
 Semi Deviation           1.5404
 Skewness                  .0874
 Kurtosis                 4.0941
 Beta                      .5553
 Pr(R<  5.00% Annual)      .4399
 Pr(R<  5.00% Annual)      .4399
 Pr(R<   .00% Annual)      .3767
 Reward/Variance           .1511
 Reward/Semivariance       .2451
 Reward/Beta               .6799
 Reward/LPM n=1.1          .4508
 Reward/LPM n=3.0          .1739
 Portfolio Utility         .7225

 Portfolio # 11 50/50    __ Allocations
   1 S & P 500 Composite  50.0000
0
   2 Lehman Govt/Corp Bon 50.0000
                                                        0
```

```
 PMSP Professional - Copyright 1998 (c) The QInsight Group

 Data: Monthly
 File Name: index995.dat
 File Description:  S&P,CPI,Intermediate Bond Returns Monthly 1960 to
1998
 Prepared for:                                                    2:37
PM
 by:                                                          10- 8-
1999


 Portfolio # 12  60/40   ____

 Historic Observations   1 - 468

 Annualized Return       10.2676
 Monthly   Return          .8178
 Terminal Wealth         49.5756
 Standard Deviation       2.8157
 Semi Deviation           1.7698
 Skewness                 -.0293
 Kurtosis                 4.2970
 Beta                      .6436
 Pr(R<  5.00% Annual)      .4421
 Pr(R<  5.00% Annual)      .4421
 Pr(R<   .00% Annual)      .3857
 Reward/Variance           .1458
 Reward/Semivariance       .2319
 Reward/Beta               .6377
 Reward/LPM n=1.1          .4310
 Reward/LPM n=3.0          .1619
 Portfolio Utility         .7385

 Portfolio # 12 60/40    __ Allocations
   1 S & P 500 Composite  60.0000
0
   2 Lehman Govt/Corp Bon 40.0000
0
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```
 PMSP Professional - Copyright 1998 (c) The QInsight Group

 Data: Monthly
 File Name: index995.dat
 File Description:  S&P,CPI,Intermediate Bond Returns Monthly 1960 to
1998
 Prepared for:                                                    2:38
PM
 by:                                                          10- 8-
1999


 Portfolio # 13  70/30   ____

 Historic Observations   1 - 468

 Annualized Return       10.6995
 Monthly   Return          .8507
 Terminal Wealth         57.0951
 Standard Deviation       3.1522
 Semi Deviation           2.0118
 Skewness                 -.1228
 Kurtosis                 4.5463
 Beta                      .7321
 Pr(R<  5.00% Annual)      .4441
 Pr(R<  5.00% Annual)      .4441
 Pr(R<   .00% Annual)      .3936
 Reward/Variance           .1406
 Reward/Semivariance       .2203
 Reward/Beta               .6054
 Reward/LPM n=1.1          .4121
 Reward/LPM n=3.0          .1518
 Portfolio Utility         .7513

 Portfolio # 13 70/30    __ Allocations
   1 S & P 500 Composite  70.0000
0
   2 Lehman Govt/Corp Bon 30.0000
0
```